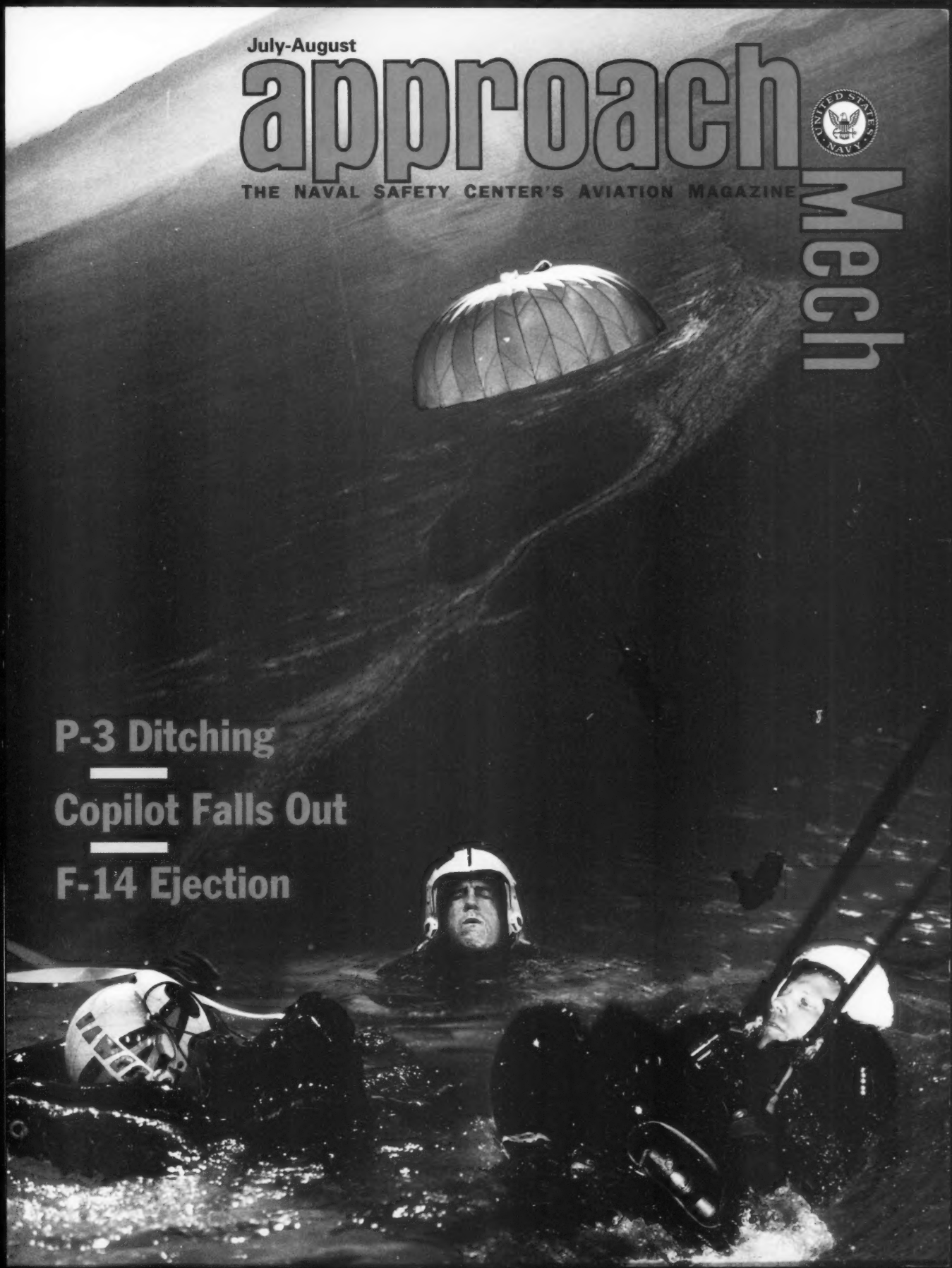

July-August
approach
THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE
Mech
P-3 Ditching
Copilot Falls Out
F-14 Ejection

July-August 1996 Volume 41, Number 4

approach Mech

THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

On the cover: Survival training will get you home. *(Photos by PHCM Charles Miinke, USN (Ret), PR2 [AW/FPS] Chuck Denton, and Peter Mersky)*

RAdm. Frank M. Dirren, Jr., Commander, Naval Safety Center
Bill Mooberry, Executive Director
Cdr. John G. Mahoney, Head, Media and Education Support
LCdr. Ken Skaggs, Editor
Joe Casto, Assistant Editor
Peter Mersky and Bud Baer, Associate Editors
Laurinda Minke and Frank Smith, Design and Layout

Address comments, contributions and questions about distribution and reprints to: Commander, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399,

Attention: *Approach* — Code 71
Tel: (757) 444-3520 ext. 7245
DSN 564
e-mail: edapprch@tecnet1.jcte.jcs.mil

Attention: *Mech* — Code 711
Tel: (757) 444-3520 ext. 7247
DSN 564

Approach Mech (ISSN 0570-4979) is published bimonthly by the Commander, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399. *Approach Mech* contents should not be considered directive and may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. *Approach Mech* is available for sale by the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Subscription price: $18 per year. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (202) 512-1800. Second-class postage paid at Norfolk, VA and additional mailing offices.

• **POSTMASTER:** Send address changes to *Approach Mech*, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399.

DEPARTMENTS

2 Lessons Learned

3 Pop-ups

30 Bravo Zulu
Approach: VF-201, VXE-6 and VMGR-234.
Mech: VRC-30, VF-14, VF-84, HMM-164, VA-115, HMM-166, VA-196, and VMAQ-4.

Air Wing
Crew Coordination Training Isn't Just for Aircrews Anymore
You can reduce the Class C mishap rate by training ground crews to communicate. Class A mishap rates and summaries. (tear-out bulletin and hazard report)
LCdr. John K. Schmidt, Ph.D., MSC
poster by LCdr. Tom Ganse

43 Crossfeed
Straight talk from maintenance specialists about power plants, ALSS, survival equipment, air-frames, supervision, and maintenance management.

APPROACH FEATURES

4 "Immediate Ditch"
P-3 crew goes down off Oman.
Lt. Wes Smith

7 I Thought You Had It
Confusion reigns in the cockpit because of bad communications. *LCdr. Neil May*

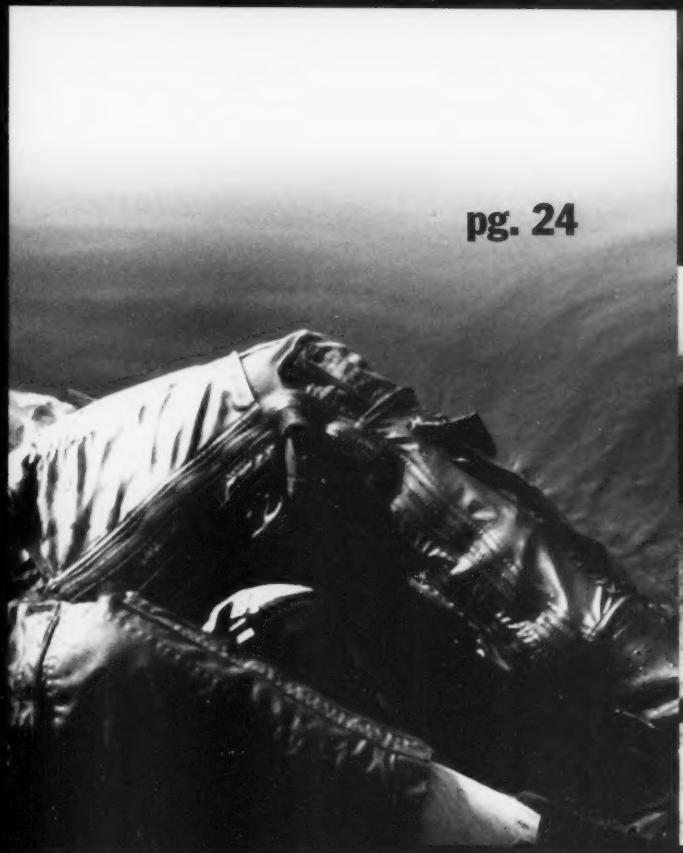
8 Inadvertent Jettison of the Copilot
He thought he'd lean out to get a better shot!
Cdr. Robert Mozo

10 Ejection Into the Night
This F-14 crew punches out during a night FCLP.
Lt. Rich Gourley

12 Strangers Among Us
Confusion in the night FCLP pattern as this Prowler crew discovers they are not alone.
Lt. Chuck Luttrell

14 I Almost Ejected
This T-2 SNA grabs the wrong handle to steady himself while looking for a pen. *Lt. M.K. Molpus*

15 Sea Crane at 12 O'Clock!
Flying at low altitude, a T-44 crew has a birdstrike. *LCdr. T.A. Graziano*



pg. 24

pg. 36

MECH FEATURES

16 A Day of Firsts
A Guam-based SAR crew has to interrupt their holiday to look for a tourist. *Lt. David A. Heathorn*

18 My Training Command SAR
A student and his instructor coordinate a rescue attempt when a civilian aircraft crashes. *Lt. Dan Dohmeyer*

20 Making ORM Work
Ike uses the new strategy with impressive results. *Cdr. Giuseppe Donadio*

23 "You Go Right, and I'll Stay Left!"
A T-44 student nearly hits an FA-18 in the touch-and-go pattern. *Ltjg. Christine Acton*

24 Our Bucking Tomcat Ride
When their F-14 starts imitating a rodeo bronc, the crewmen leave their saddles. *Lt. Todd Parker*

27 Briefly Stated: Is Anyone Listening?
It was a good thing his student heard the brief. *Maj. Peyton DeHart, USMCR*

28 Is That Mt. Whitney?
Two naval aviators crash in a remote area. *Lt. Harry Hirschman*

34 Broken Nose Weather-vaning and no brakes. *Ltjg. Frank Salcedo*

35 A Wrenching Mistake
H-60 wrench rest. *Lt. Chad O. Dorr*

36 Who's on First? Nose gear collapses on troubleshooter. *Robert A. Alkov, Ph.D.*

38 What You Can't See Can Hurt You
"What fumes?" *AMCS(AW/NAC) Ed Winnett*

39 A Shipmate Tried to Kill Me
Broken tool not found. *Lt. K.A. Szmed, Jr.*

40 It Might Have Been a Squashplate
Four people or two? *AMS2(AW) Kelly Allen and AMS3 James Kehler*

41 The Big Yellow Something
The pilot saw something yellow. *Sgt. D.J. Gamboa, USMC*

42 Wingin' It
Use the buddy system on the flight deck. *VS-22 Checkmates*

LESSONS LEARNED

There are two ways to get smart. One is through experience – we call this "the hard way." The other is to learn through others' experiences. The second method is much easier on our machines and bodies.

Reinventing the Wheel Can Be Deadly

A four-ship sortie launched at night with a standard running rendezvous briefed for initial joinup. After takeoff, Dash 2 didn't fly out to the proper bearing line off the lead aircraft to initiate the joinup. He tried to rendezvous from slightly outside the lead's six o'clock position. Dash 2 struck the lead aircraft during the attempted joinup. Moments later, he crashed into the water without attempting to eject.

Lessons Learned

1. Bloody history has proven again and again not to night rendezvous from lead's six. From this position, the only light sources that can be seen are the anti-smash and white tail lights. These lights do not provide the necessary references to judge closure and distance to the lead aircraft. The bearing-line technique was invented long ago to create a "light triangle" to give bearing, closure and distance to lead aircraft.

2. Even if the pilot on a six o'clock joinup recognizes closure and underruns, there is now a "new lead" who doesn't know where the flight is. He is now in a difficult position where he must fly looking over his shoulder and risk a midair with the real lead or other members of the flight. Finally, a rendezvous on proper bearing line enables the lead pilot to see all his wingmen and provide guidance if required.

3. From day one in the training command's formation syllabus, pilots are taught to rendezvous with controlled closure rates and aligned fuselages on the proper bearing line. This is emphasized, graded and critiqued on every initial joinup, break-up and rendezvous and off-target rendezvous throughout the training command and FRS and even into fleet units. The mishap pilot in this instance tried to reinvent the wheel and lost his life in the process.

— Capt. Mike Kraft, USMC
Naval Safety Center

Lessons Relearned

A routine VFR ASW flight quickly became a Class A mishap that destroyed an aircraft. The pilot climbed out from dropping buoys at a high angle of attack, failed to maintain enough airspeed and stalled the aircraft. What went wrong?

The pilot's scan broke down. He focused outside the cockpit and targeted a hole in the clouds to fly through rather than cross-check his instruments. He was flying a heavy aircraft with a large aft center of gravity. This reduced the stall indication and made the pitch-up response more sensitive.

The COTAC, who hadn't had enough crew rest, failed to provide adequate backup to the pilot. Although the aircraft stalled at a recoverable altitude, neither the pilot, the COTAC or the rest of the crew recognized that the aircraft had stalled. The pilot used an unusual attitude-recovery technique along with a rudder input that aggravated the stall. The crew ejected. One crew member had left the leg zippers of his flight suit open, and suffered burns on both legs. Fortunately, all four aviators were recovered.

Lessons Learned:

Lessons learned from this mishap aren't new; yet, they apparently need to be relearned:

1. You must maintain your instrument scan, even on the most routine flights.

2. Analyze the hazards when you have a change from your norm (do a "change analysis"). This situation was aggravated by an unusually heavy aircraft and aft CG. If the crew had analyzed the hazards associated with these changes, they could have discussed the differing flight characteristics in the brief and been more aware of the increased risk of a stall.

3. Crew coordination isn't just a buzzword. No crew member can afford to be along for the ride, regardless of how good the pilot is or how "harmless" the phase of flight.

4. Fatigue affects performance. It's subtle, but the effects are there. Make sure you get the necessary rest and you're ready for the mission.

5. The crew must know all indicators of stalls and other emergencies as well as recovery procedures. In an emergency, your analysis and response must be based on solid NATOPS knowledge and understanding, or you could easily do the wrong thing in the heat of the moment.

6. Wear your flight gear correctly on every flight. If you don't, you may get your legs burned or worse.

— LCdr. Jan Myers
Naval Safety Center

Edited by Bud Baer. Contributors can contact him at (804) 444-3520 Ext. 7246, (DSN 564).

POP-UPS

Navy Tightens Rules ○ Class A FM Mid-Year COs' & XOs' Course ○ Mr. P-3 Honored Strategic Plan Published ○ CHINFO BZs

Navy Tightens Aviation Safety Rules – After a rash of crashes earlier this year, the Navy will increase flight training and toughen oversight of its aviators, as follows:

- The VCNO, will review all reports of field naval aviator evaluation boards (FNAEBs).
- The NFO-to-pilot program will be discontinued.
- All aviators will get more training in instrument flight and in handling spatial disorientation and vertigo.
- All COs and XOs will complete the Navy's Aviation Safety Command Course.

Class A Flight Mishaps – Mid-Year Report – At the halfway point of FY96, the Navy and Marine Corps Class A flight mishap rate was 2.68, compared to the FY95 mid-year rate of 2.71. FY95 was the second best year on record.

As of March 31, 1996, 21 Class A flight mishaps had occurred, compared to 20 in FY95. During the first six months of FY96, the Navy and Marine Corps flew an estimated 782,789 hours, compared to 739,136 in the first half of FY95 — a 5.9 percent increase.

Between Oct. 11, 1995, and Jan. 14, 1996, the Navy and Marine Corps had no Class A flight mishaps–a record 96 mishap-free days. The Marine Corps continued its record to Feb. 15–128 mishap-free days.

AIRLANT Gears for Safety Course – COMNAVAIRLANT has asked its COs and XOs to complete the Aviation Safety Command Course by Nov. 1, if they have not already attended it. Past attendance at the Aviation Safety Officer Course is not a substitute. AIRLANT point of contact is Harriet Garland, (804) 444-3741, (DSN 564).

Jay Rivers Beasley–Mr. P-3 – Rarely is a civilian pilot honored by the Navy, but Jay Beasley was twice decorated with the Navy Distinguished Service Medal, had an FRS building named after him, and was designated Honorary Naval Aviator No. 11. This was in part for his work with the P-3, which he landed 31,479 times during 9,479 hours of flight time. His total flight hours were 20,079.

Mr. P-3 died May 15, 1996.

Jay Beasley was born on a farm near Waxahachie, Tex., in 1914. He soloed in 1932 and flew 50 types of aircraft during his lifetime. He joined American Airlines as a mechanic in 1935, gained a senior-mechanic rating at 23 and was later designated a copilot on test flights.

Mr. Beasley joined the Air Corps Ferry Command in 1942 as a civilian pilot, ferrying 13 types of aircraft. He became a Lockheed test pilot in 1943, an American Airlines copilot in 1945 and a corporate pilot with Ibex Company in 1948. He rejoined Lockheed as a test pilot in 1951.

He trained pilots for American, Braniff, TWA, Eastern, Pakistan, KLM, Qantas, Northwest, the Air Force and the Navy before retiring in 1975. He rejoined Lockheed as a consultant in 1978 at age 65 and was reinstated as an instructor pilot at the Navy's request. He retired from flying at age 70.

During his career, Jay Rivers Beasley tested 25 types of military aircraft, including the P-38, C-60, PBO, PV-1, B-37, B-17, P2, and of course, the P-3.

Strategic Plan on the Street –The Naval Safety Center's direction and priorities into the 21st century are spelled out in its recently published Strategic Plan.

"This plan represents a fine-tuning of our mission, vision and guiding principles, and articulates a series of goals I hope show you how we plan to improve our service to the fleet and how we can work better with each other," said RAdm. Frank Dirren, Jr., the Center's commander.

RAdm. Dirren identifies five top-priority goals to improve the effectiveness and efficiency of the Center's services as follows:

1. Develop a sense of ownership for our mission, vision and strategic plan.
2. Improve our methods of collecting and analyzing data.
3. Standardize the quality of safety programs in the aviation, shore and afloat directorates.
4. Ensure our staff is well-trained.
5. Improve communications with our customers.

COMNAVSAFECEN Pubs, Staff Rank High in CHINFO Contest – John Williams won first place for illustrative art. Ted Wilbur, whose many drawings have appeared in *Approach Mech*, won honorable mention.

Approach Mech won second place for magazine publications for a specific audience in the media awards competition sponsored by the Navy Chief of Information for "exemplary achievements in internal media products by Navy commands and individuals."

In the writing categories, honorable mentions went to Joe Casto for commentaries and Peter Mersky for feature articles.

Edited by Bud Baer. Contributors can contact him at (804) 444-3520 Ext. 7246, (DSN 564).

"Immedia

Our crew had flown two days of ASW events with the *Constellation* battlegroup. During the trip home, after five months of surveillance missions in the Arabian Gulf and Red Sea, I was sitting in the galley, writing a post-mission report when the flight station called me (I was TACCO) to my station.

"We have a prop-pump light on No.4 engine," he said.

The pilot wanted me to help the nav/comm report our problem to homeplate at Masirah, Oman. The nav had everything under control, so I simply monitored his comms. I tried to gain more information from the flight station without interrupting their troubleshooting.

It seemed they were worried about having a pitchlocked prop. They planned to wait until we were overhead Masirah to descend. The 2P was a second-tour, former FRS instructor, who had reported to the squadron less than a month before. He told me there might be quite a bit of adverse yaw whenever they shut down the engine.

Because we were close to our landing site and expecting adverse yaw, I decided to have the crew set Condition 5 (strap in and secure all loose equipment) before we started the descent.

As we were descending, we continued talking to our maintenance department on base frequency. Our pilot NATOPS officer made a comment I'll always remember. In his classic Arkansas twang, he said, "It sounds like y'all have everything under control." At the time, I thought we were well prepared for a three-engine landing in Masirah.

As we passed 6,500 feet, I heard a loud explosion, followed by the sound of metal tearing through metal. I will never forget the next thing I saw. The nav looked at me with fear in his eyes and yelled, "Wes, we're on fire!"

I glanced at my station. There was no electrical power. That didn't stop the nav from calling, "Mayday, mayday. We've lost No. 4!" Our maintenance control, the Omani Air Force Tower, and SAR alert heard him before we lost all power.

I then secured all station equipment, hoping it would make it easier for the flight station to restore power. As I looked to my left, I could see that the No. 1 and No. 2 engines were windmilling, winding down from a loss of power. The 2P yelled, "Immediate ditch, immediate ditch!"

We were already strapped in. All I had to do was put on my helmet and tighten my straps.

It was about a minute-and-a-half until we hit the water. I said a prayer, thought back to my last phone call with my wife, and considered what I was going to do once we hit the water. We were only six miles from land, and all I would have to do to survive was get out of the aircraft after we hit.

We skipped three times on the water before stopping. I was immediately grateful for all our drills and

The nav looked a eyes and yelled

te Ditch!"

by Lt. Wes Smith

my water-survival training as I went through my emergency actions without thinking. My most vivid memory is the rush of water crashing through the tube. My first impression was that the plane was sinking fast.

I left my seat and started toward the port over-wing exit. There was enough light in the tube that I could see the other crew members moving toward the exits, but I couldn't tell who was who. The only damage I could see in the interior was a door from one of the C racks floating in the water and a loose door on one of the B racks. I had no problem walking back toward the exit.

At this point, the water was 18 to 24 inches deep in the tube. There was a small traffic jam at the starboard over-wing exit, and I actually considered using that exit, but I knew the port over-wing was my assigned exit. Besides, it would cause confusion later if I took the wrong exit.

I met the flight tech at the port over-wing exit. He had already removed the hatch and was throwing the raft out the door. The flight tech told me that he had handed the door to me, but I don't remember what I did with it. I followed him out the hatch and was greeted by the PPC standing waist deep in water on the wing between the No. 1 and No. 2 engines. He had used the side escape hatch in the flight station. The flight tech was struggling with the inflation handle and couldn't get the raft to inflate.

The 2P was walking along the top of the fuselage counting heads. I asked him if everyone was out. He assured me they were and that the other two rafts were inflated on the other side of the sinking aircraft.

The PPC suggested we swim to the other rafts and then reminded me to inflate my LPA. I had been so caught up in worrying about the other survivors and the challenge of inflating the raft that I had forgotten it. I waded off the wing. Then the PPC, flight tech and I attached our LPAs together and began to backstroke around the aircraft toward the other rafts. As we swam around the aircraft, I got an excellent view of the broken MAD boom dangling from the tail. There were also numerous sonobuoys marking the aircraft's trail through water; their red flags were surrounded by suspension packages.

When the other crew members saw us swimming toward them, they started paddling toward us and helped us board the raft. Fortunately, seas were calm.

Apparently, they were uncertain about our fate and were glad to see us. I vividly remember the radar operator saying, "Everyone is OK, sir!"

As I climbed into the raft, I saw a P-3 on the horizon flashing its landing lights and flying toward us. The other crew had seen us hit the water and took off immediately for the SAR effort.

When everyone was safely in the raft, we checked each other for injuries or signs of shock. The PPC had fuel in his eyes, so the acoustic operator used a water

me with fear in his 'Wes, we're on fire!"

...the Omani SAR swimmer jumped into the water to help him. We learned later the swimmer had been reluctant to dive in because he spotted several sharks in the area.

bottle to flush them. I noticed several crew members using their PRC-90 survival radios. I told everyone except the nav to put theirs away so that only one person would be communicating with the SAR aircraft. The nav still had trouble contacting the SAR plane.

Before we could troubleshoot the problem, we saw an Omani helicopter. We decided to put away the radios and prepare for the pickup. Once the helo arrived, we decided the junior man should go first. The SS-2 exited the raft and was immediately blown away by the rotor wash from the helo. Since the Omanis use a different type of horse collar than we do, the SS-2 had difficulty putting it around himself. After a short delay, the Omani SAR swimmer jumped into the water to help him. We learned later the swimmer had been reluctant to dive in because he had spotted several sharks in the area.

Each member of our crew jumped into the water in succession, was blown away from the raft by rotor wash, and got hoisted into the helicopter with the swimmer's help.

After the fifth or sixth person was picked up, the swimmer motioned for us to stay in the raft. He swam to the raft and told us to stay in the raft for the next pickup, contrary to what we were taught during water survival. The helo took one more person and had to return to base to drop off the survivors, which left the FE, the nav, the 2P and me in the raft.

I turned on my PRC-90 and was able to establish comms with the SAR plane. I told them no one was hurt. The Omani helo returned and picked us up for the short flight back to Masirah.

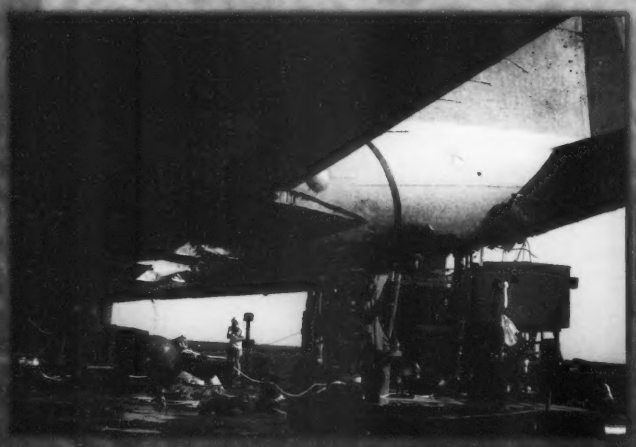
The best lesson I learned from this mishap is that training is everything. My old PPC had insisted on holding at least one drill every flight. When he left the crew and I became the mission commander, I continued the practice on every flight. After the plane hit the water, all my actions were instinctive. I used the same hand holds I had used in every drill.

Incidentally, no one on the crew carried their assigned emergency gear with them. I was supposed to carry the first-aid kit and the port water bottle, but being so close to land, I focused on safely egressing the aircraft, not an extended survival situation.

During my water-survival training in Pensacola (and subsequent refresher), I had thought the helo dunker was not very beneficial, since I am a helo passenger less often than most surface warfare officers. But the training I received in the helo dunker was invaluable. After egressing an upside-down helo blindfolded, leaving a right-side up P-3 in daylight was not that hard.

I also learned that not everyone operates the same way as our Navy. From now on, when I fly where organizations other than the Navy or Coast Guard are responsible for SAR, I familiarize myself with their SAR procedures.◄

Lt. Smith flew with VP-47 at the time of this story. He is currently assigned to the NAVAIR Training Unit, Randolph AFB.



I Thought You Had It

by LCdr. Neil May

Once upon a cruise, an E-2C Hawkeye launched on a night AEW mission south of the Azores while en route to the Med. The weather was great, with loads of starlight but no moon. We had done the standard Case III departure and were outbound climbing to station. Although I was a new guy, I was also the senior pilot in the squadron because the CO and XO were NFOs. I was sitting in the right seat, with the plane commander in the left seat at the controls (a more junior pilot but squadron veteran). Passing 12,000 feet, the pilot turned to me and asked, "Do you have the air plan?"

I replied, "Sure do!" and handed it to him. The plane commander said, "Uh, great. I like knowing who's in the recovery with us." I was impressed by his attempt to gain more situational awareness and continued monitoring the climb as he read the air plan. I was also impressed with how well he had trimmed the aircraft since he was flying hands off, scanning the air plan and the instruments.

I took a quick scan outside and noticed the pilot had turned gently (about 20 degrees AOB) toward our station. I came back into the cockpit and noticed the pilot still scanning the air plan and instruments, hands off. The aircraft gently rolled further right to 30 degrees AOB.

"Thirty degrees," I said over the ICS and continued looking at the pilot and attitude reference for a reaction. The turn continued to 45 degrees AOB and I said, "45 degrees AOB." Still no response, so I took the controls, rapidly leveling the wings, and continued the climb through 19,000 feet.

The plane commander looked up as I rolled wings level. The mission commander, in the rear of the aircraft, asked what had happened.

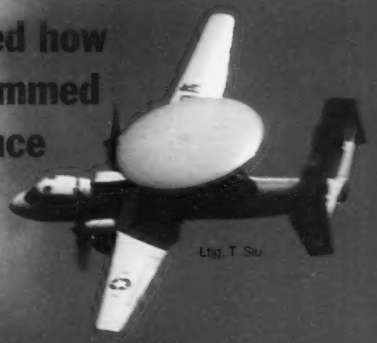
After a simultaneous "I thought you had the airplane!" we realized how we had miscommunicated, The plane commander had originally asked if I had the "airplane," not the "air plan."

Several weeks before this flight, I had received aircrew-coordination training during my refresher syllabus at the FRS. The course included the "two-command" rule for multiplace aircrew. This rule states: During IMC or night conditions, an AOB exceeding 30 degrees must be challenged. After two challenges without a response the other pilot is to assume control of the aircraft.

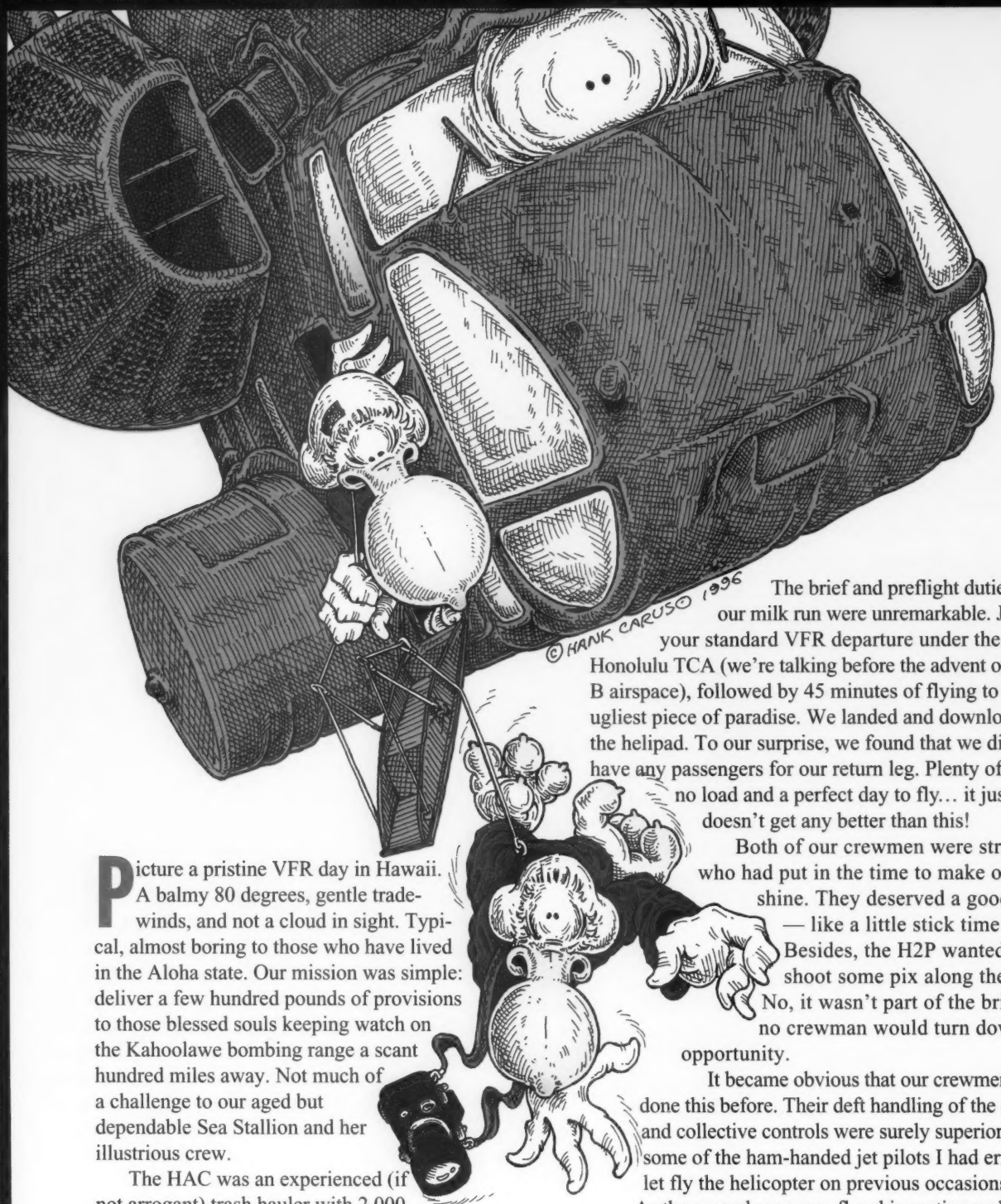
That night, we made a fundamental error in our command-reply procedure. The initial command should have been, "You have the controls," the reply being, "Roger, I have the controls." Although I watched the situation develop, I am still impressed how easily aircrew coordination can take a "turn" for the worst. ◄

LCdr. May flies with VAW-126.

I was impressed how well he had trimmed the aircraft since he was flying hands off...



Ltjg. T. Siu



Picture a pristine VFR day in Hawaii. A balmy 80 degrees, gentle trade-winds, and not a cloud in sight. Typical, almost boring to those who have lived in the Aloha state. Our mission was simple: deliver a few hundred pounds of provisions to those blessed souls keeping watch on the Kahoolawe bombing range a scant hundred miles away. Not much of a challenge to our aged but dependable Sea Stallion and her illustrious crew.

The HAC was an experienced (if not arrogant) trash hauler with 2,000 hours in model. The copilot was an eager H2P with a penchant for photographing these magnificent islands. We'll call him "Jones." Two able-bodied lads, who had seen and done it all in previous fleet tours, rounded out our crew. What could go wrong?

The brief and preflight duties for our milk run were unremarkable. Just your standard VFR departure under the Honolulu TCA (we're talking before the advent of class B airspace), followed by 45 minutes of flying to the ugliest piece of paradise. We landed and downloaded at the helipad. To our surprise, we found that we did not have any passengers for our return leg. Plenty of fuel, no load and a perfect day to fly... it just doesn't get any better than this!

Both of our crewmen were strokers who had put in the time to make our unit shine. They deserved a good deal — like a little stick time. Besides, the H2P wanted to shoot some pix along the way. No, it wasn't part of the brief, but no crewman would turn down the opportunity.

It became obvious that our crewmen had done this before. Their deft handling of the cyclic and collective controls were surely superior to some of the ham-handed jet pilots I had errantly let fly the helicopter on previous occasions.

As the second crewman flew his portion and headed toward homeplate, I reveled in the knowledge that I got paid to do this.

As we went feet wet crossing the Kaiwi channel back to Oahu, we were level at 1,000 feet and 120 knots.

"This guy is a pretty good stick," I thought. Then I noticed a change in wind noise through the cabin as if the

Inadvertent Jettison of the Copilot

by Cdr. Robert Mozo

gunner's window had been opened, followed by a frantic, "Ohmigod, Mr. Jones just fell out of the aircraft!"

Words can't explain the feeling of absolute terror and helplessness I felt. Quickly retaking the controls, all I could think to say was, "Drop a smoke and keep him in sight, and we'll try to recover him." I'm still not sure about the appropriate response to this situation, but I don't think that assuming someone would survive a thousand-foot drop is part of it.

"No," the crewman in the back replied, "he's still on his gunner's belt."

"I'll slow down so you can pull him in," I said as I started a smooth decelerating descent. I told the crewman in the right seat to sit tight; I did not want him to kick the controls as he exited the cockpit.

"Oh, oh, his belt is hooked to the door cable and is not secure. I need help to pull him in."

The CH-53A had an "airstair" door, which opened outward with a cable that limited the door's extension. The copilot had hooked his gunner's belt to the cable instead of the overhead fittings, which are designed to secure him to the airframe.

I sent the second crewman aft to help retrieve my nearly departed copilot...

Continuing the descent, I sent the second crewman aft to help retrieve my nearly departed copilot, who was holding onto the cable with one hand and his camera with the other. After what seemed an eternity, I established a stable 30-foot hover just as the two crewmen pulled the copilot into the aircraft.

The invincibility of youth is a wondrous thing. I had just undergone a thousand slow deaths, envisioning the end of my career, and this young buck enters the cockpit with the most nonchalant "what's the problem" look I had ever seen.

"Sit down, strap in and don't touch nothin'," I said as we transitioned to forward flight.

On the way home, I reviewed with the crew what had happened and what (by rights) we should report. The copilot said that he was not hurt, and the crewmen (and I) were sure no one else had witnessed the event. Employing the "no harm, no foul" rationale, we agreed not to report the incident unless the copilot needed medical attention. I believe the words were, "We ain't saying nothing, sir." (Famous last words if I ever heard them.)

Back home, postflight inspection revealed slight warping of the door that could be easily fixed by the metalsmiths. The copilot had some tender ribs (as you would expect after a fall, a sudden stop, and a 120-knot thrashing along the belly of the aircraft). Besides, he still had his camera and all of his flight gear with him. We had cheated death, left the aircraft mostly undamaged and were pleased to close out the yellow sheet and move on. No one would be the wiser and our story should end here. But...

Sometime later, someone asked about the warped door, and parts of the story emerged as one of those hangar-deck fables. Another year followed before a crewman fell out of the same door of the same aircraft. Fortunately, he was properly attached to the aircraft by a gunner's belt. No real harm except for a frightened crewman and embarrassment to the command.

The second incident might have been averted if we had reported the first. The Marines have documented similar incidents. There really is a reason for safety reporting.◄

Cdr. Mozo is the air operations officer for NAS Norfolk.

Ejecting Into

by Lt. Rich Gourley

"Eject, eject, eject!" You hope you'll never hear that command, but you also hope you are ready to act if the time comes. We climbed out of NAF San Clemente after night FCLPs and headed home. A port-engine failure had turned into an engine fire, and it just wasn't going out. Having completed the boldface, and with the fire light still staring us in the face, we decided it was time to give the airplane back to the taxpayers.

My pilot called, "Aircraft 110 is on fire. Eject, eject, eject!"

As I was looking down to grab the ejection handle (NACES seats only have a lower ejection handle), the canopy came off and I was off to the races into a dark Pacific night. I lost my glasses in the wind blast, and felt the seat fall away. The first things I saw were a fully inflated parachute and the blurry lights of the airfield we had just left in the distance. After a few dozen expletives and a couple prayers of thanks, that "IROK" phrase popped into my head.

After inflating my SV-2, I began searching for my raft release. "Isn't that little handle supposed to be on the right side of my seat?" I thought as I grabbed and pawed for anything that remotely felt like a raft-release handle. Having no luck, I continued with my options.

Getting my gloves and mask off and connecting my lobes, I lifted my seatpan up with my legs and began to search the entire pan for the raft release. My fingers latched on to a little rubber ring on the rear left of the seat, and I thought, "I wonder what this is for?"

My question was answered when I pulled it and my raft fell below and inflated.

I sat back and enjoyed the rest of my first solo as I prepared to enter the water. Seeing white caps below, I looked skyward, put my fingers on the koch fittings and waited for my feet to hit the water. I think my feet hit the water first, but my head wasn't too far behind as I hit like a ton of bricks. Between the SEWARS and my fingers, I was free of the parachute and swimming for the raft.

Pulling myself into the raft, I disconnected one of my lower kochs and carefully flipped my seatpan over onto my lap as I turned over in the raft. I figured, "Since I'm connected to my seatpan, and my raft is too, then we're connected to each other." Finding the radio, I tried a call on 282.8, saying, "Aircraft 110, RIO in the water." Following the radio call, I

After inflating my SV-2, I be release. "Isn't that little ha right side of my seat?" I th for anything that remotely f

pulled out the helmet-mounted strobe light and attached it to my helmet.

Then I put my helmet back on and got ready to use my day-night flare. Seeing the first helicopter approach, I popped my flare and prepared for them to pluck me out of the water. The helo came over, shined his light on me, and left. At that point, I figured the helo was leaving to search for my pilot and would be back momentarily to save me. After the guy began making laps between me and the west, I began to wonder. About

the Night

30 minutes later, another helo arrived from the west as the first came back and kept an eye on me. This was the first and last time I saw the pilot's strobe in the water, underneath the other helo. A few minutes later, the first helicopter departed as the other came my way.

Just as I noticed some chemlights dangling from a line, a head popped up next to me and asked if I was OK. After getting rid of all my extraneous gear and knifing my raft, the swimmer and I headed for the line, connected up and were hoisted into the waiting helo. I saw my pilot laying on the deck and giving me a thumbs up. We then headed to the hospital and continued the fun.

Every piece of our gear worked 4.0, from the ejection seat to the strobe light. We had the new seats, so the raft-release

n searching for my raft
le supposed to be on the
ght as I grabbed and pawed
like a raft-release handle.

handle was in a different place than most other ejection seat pans, and both of us had to take a little extra time to find the release handle. A note of caution: be careful bringing the seat pan into the raft, or you risk puncturing the raft and being stuck bobbing in the water.◄

Lt. Gourley flew with VF-11 at the time of this mishap, ejection. He is now an instructor with the Aircrew Coordination Training Department, Naval Aviation Schools Command.

PR2(AW/FPJ) Chuck Denton

Ejecting Into

by Lt. Rich Gourley

"Eject, eject, eject!" You hope you'll never hear that command, but you also hope you are ready to act if the time comes. We climbed out of NAF San Clemente after night FCLPs and headed home. A port-engine failure had turned into an engine fire, and it just wasn't going out. Having completed the boldface, and with the fire light still staring us in the face, we decided it was time to give the airplane back to the taxpayers.

My pilot called, "Aircraft 110 is on fire. Eject, eject, eject!"

As I was looking down to grab the ejection handle (NACES seats only have a lower ejection handle), the canopy came off and I was off to the races into a dark Pacific night. I lost my glasses in the wind blast, and felt the seat fall away. The first things I saw were a fully inflated parachute and the blurry lights of the airfield we had just left in the distance. After a few dozen expletives and a couple prayers of thanks, that "IROK" phrase popped into my head.

After inflating my SV-2, I began searching for my raft release. "Isn't that little handle supposed to be on the right side of my seat?" I thought as I grabbed and pawed for anything that remotely felt like a raft-release handle. Having no luck, I continued with my options.

Getting my gloves and mask off and connecting my lobes, I lifted my seatpan up with my legs and began to search the entire pan for the raft release. My fingers latched on to a little rubber ring on the rear left of the seat, and I thought, "I wonder what this is for?"

My question was answered when I pulled it and my raft fell below and inflated.

I sat back and enjoyed the rest of my first solo as I prepared to enter the water. Seeing white caps below, I looked skyward, put my fingers on the koch fittings and waited for my feet to hit the water. I think my feet hit the water first, but my head wasn't too far behind as I hit like a ton of bricks. Between the SEWARS and my fingers, I was free of the parachute and swimming for the raft.

Pulling myself into the raft, I disconnected one of my lower kochs and carefully flipped my seatpan over onto my lap as I turned over in the raft. I figured, "Since I'm connected to my seatpan, and my raft is too, then we're connected to each other." Finding the radio, I tried a call on 282.8, saying, "Aircraft 110, RIO in the water." Following the radio call, I pulled out the helmet-mounted strobe light and attached it to my helmet.

After inflating my SV-2, I be release. "Isn't that little ha right side of my seat?" I th for anything that remotely f

Then I put my helmet back on and got ready to use my day-night flare. Seeing the first helicopter approach, I popped my flare and prepared for them to pluck me out of the water. The helo came over, shined his light on me, and left. At that point, I figured the helo was leaving to search for my pilot and would be back momentarily to save me. After the guy began making laps between me and the west, I began to wonder. About

the Night

30 minutes later, another helo arrived from the west as the first came back and kept an eye on me. This was the first and last time I saw the pilot's strobe in the water, underneath the other helo. A few minutes later, the first helicopter departed as the other came my way.

Just as I noticed some chemlights dangling from a line, a head popped up next to me and asked if I was OK. After getting rid of all my extraneous gear and knifing my raft, the swimmer and I headed for the line, connected up and were hoisted into the waiting helo. I saw my pilot laying on the deck and giving me a thumbs up. We then headed to the hospital and continued the fun.

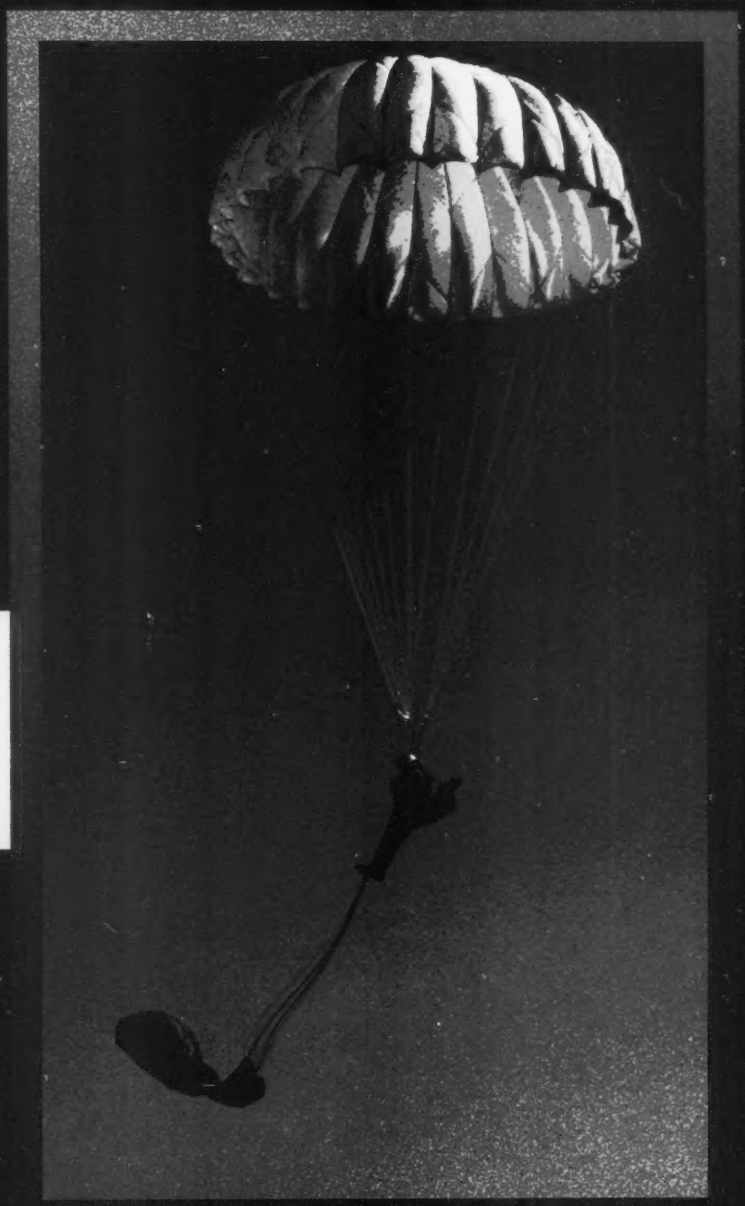
Every piece of our gear worked 4.0, from the ejection seat to the strobe light. We had the new seats, so the raft-release

n searching for my raft
le supposed to be on the
ght as I grabbed and pawed
like a raft-release handle.

handle was in a different place than most other ejection seat pans, and both of us had to take a little extra time to find the release handle. A note of caution: be careful bringing the seat pan into the raft, or you risk puncturing the raft and being stuck bobbing in the water.◄

Lt. Gourley flew with VF-11 at the time of this mishap. ejection. He is now an instructor with the Aircrew Coordination Training Department, Naval Aviation Schools Command.

PR2(AW/FPJ) Chuck Denton



Strangers Amo

by Lt. Chuck Luttrell

Lt. Craig Wevle

Another night of bouncing for the FRS CQ. The weather forecast was 1,200 overcast and gusty winds for the evening. We briefed GCAs and walked. After the first couple of approaches, paddles asked if we could work the tower pattern. He really needed to get the CAT 1's more night bounces, and time was running out before the CQ det was to leave. All of the crews hesitated, but someone eventually said that "the pattern was workable."

After each plane had three passes, the wind had blown in a low scattered layer and shifted enough to cause a runway change. Tower told all the planes to maintain their interval and fly a racetrack pattern from the approach end of runway 7 to the upwind end of runway 31. The pattern was working in and out of clouds, and we started losing sight of each other.

As the crews worked to find their interval, "strangers" started returning from the nearby OLF. Despite the congestion, paddles wanted to continue and get eight bounces for each student. He asked if we could maintain interval. The lead answered, "No problem."

All I could say to my pilot was, "Boy, this is really stupid."

After the next pass, the pattern was clobbered, and tower stepped in to try to fix it. The controller started extending planes on the upwind to make room for the strangers, which put all of the planes into the scattered layer at the end of 31. No one could see their interval. Tower decided to have all of the FCLP players "delta easy" so they could get the strangers on deck and then let us finish.

altitude. Because we were dirty, and at 150 KIAS, I told the pilot to "push the nose down and come right." He responded immediately, and we leveled off at 800 feet. Our closest point of approach was 50 feet. We took our own separation and landed. Talking to the other crew on deck, we found out we were both using the same plane for interval. They never saw us.

We never should have gone to the tower pattern in marginal weather.

During the delta, the crews still had trouble maintaining their intervals, and the controllers lost the bubble vectoring planes. Finally, one of the instructors got smart and cried uncle. He called for clearance to land. Tower then wanted all pattern aircraft to land. Unfortunately, we did not all have each other in sight, and tower started confusing call signs.

The plane at the 90 asked for a touch-and-go and got it! We were approaching midfield with Dash 4 and Dash 5 in trail. The touch-and-go plane lifted off, and tower asked if he had his interval in sight. He acknowledged, "Yes," and at midfield started turning downwind while climbing to pattern altitude.

The next sound was tower screaming, "Do you have the traffic in sight?" I looked left and saw the lifting traffic at our

The chain of events could have been broken many times that night. We never should have gone to the tower pattern in marginal weather. Changing runways put us in the goo, and the visibility was poor. Paddles had asked us twice about the ceilings, and because one guy said we could do it, no one wanted to appear weak and say no. Tower was having trouble maintaining sight but felt the aircrew could maintain their own pattern. Once strangers arrived, tower should have forced us back into the CCA pattern.

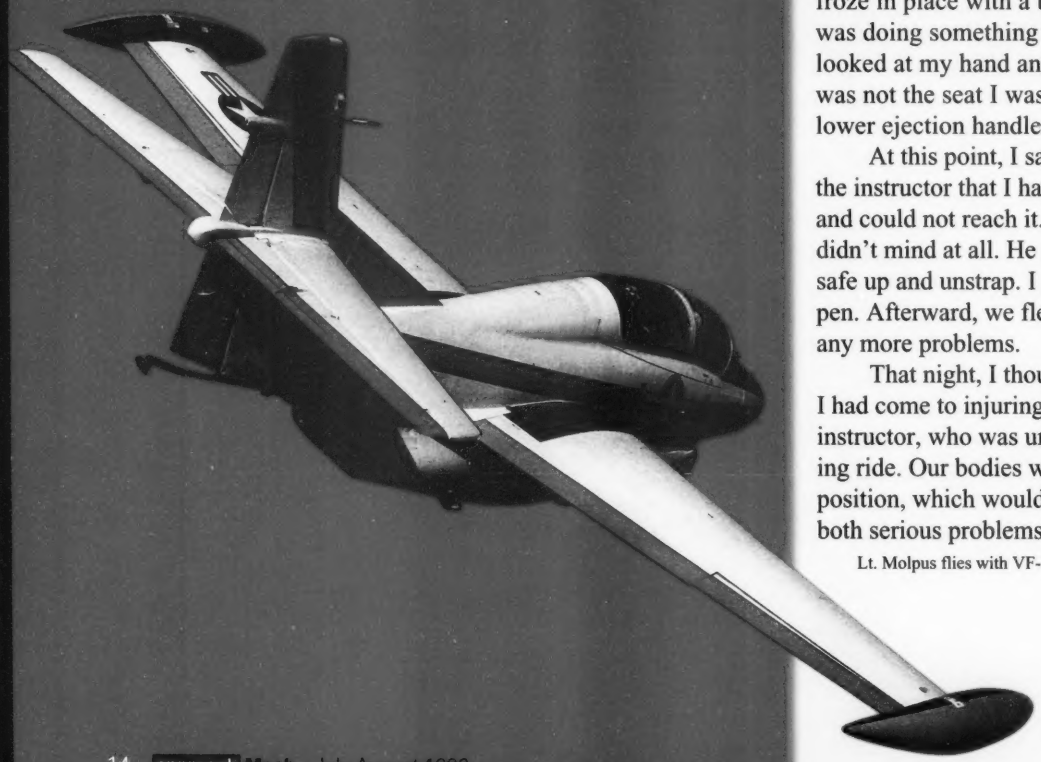
There is no substitute for good crew coordination and trust. If the pilot had questioned my commands, I probably would not be writing this article. Instead, you would be reading the conclusions of the AMB. The main lesson is not new: sometimes you get the X– sometimes the X gets you.◄

Lt. Luttrell flies with VAQ-135.

I Almost Ejected!

by Lt. M.K. Molpus

Searching for extra leverage, I reached down with one hand and grabbed what I thought was the front of the seat...



Boy, was I excited! I was preparing to man up for my first flight in a Navy jet, the T-2 Buckeye. My instructor and I briefed, and I was champing at the bit to start my FAM-1. We preflighted, strapped in, then started the engines. Everything was going great... until I dropped my pen.

I could see it lying between my feet. I stared at it, trying to decide what to do next. I didn't want to have to shut down and unstrap, which would delay us and make a bad impression on my instructor. I decided I would try as hard as I could to reach it before I 'fessed up.

As I started to lean over in my new flight gear, I found that the pen was just out of reach. All I needed was one or two more inches, and I would have it.

Searching for extra leverage, I reached down with one hand and grabbed what I thought was the front of the seat. I started to pull myself down and suddenly froze in place with a terrible feeling that I was doing something wrong. I quickly looked at my hand and discovered that it was not the seat I was tugging on but the lower ejection handle.

At this point, I sat up and confessed to the instructor that I had dropped my pen and could not reach it. To my surprise, he didn't mind at all. He simply told me to safe up and unstrap. I got out and got the pen. Afterward, we flew the flight without any more problems.

That night, I thought about how close I had come to injuring myself and my instructor, who was unaware of his impending ride. Our bodies weren't in the right position, which would have guaranteed us both serious problems. ➤

Lt. Molpus flies with VF-154.

Sea Crane at 12 O'Clock!

by LCdr. T.A. Graziano

During the day, we usually see things more easily and can dodge that incoming seagull. At night, however, you won't know anything until the 200-knot impact and explosion in the cockpit. I'm not exaggerating when I say "explosion." The initial disorientation that results from such a birdstrike is overwhelming.

Returning from West Palm Beach on the final leg of our cross-country, my student and I were navigating from Acadiana, La., to NAS Corpus in a T-34. We were at 2,000 feet (at ATC's request), progressing through the Houston TCA at nearly 200 knots when a crane decided to come aboard.

The bird hit the right exhaust stack and, careening off the top of the engine cowling, crashed through the right side of the windscreen. It bounced off my student's helmet and struck me in the chest in the rear cockpit!

Extreme noise, charts flying, bird parts galore, disorientation, right? My immediate concern was the condition of the engine (2,000 feet over Houston suburbs) and the flight controls (couldn't climb because of a layer, but everything seemed OK).

Fortunately, the glass we would clean up the next day didn't cut either of us. The student had his head down reading a chart, and I had the controls in the rear (although the bird did knock the wind out of me for a few seconds). With good crew coordination, a quick 7700 squawk, a Mayday call, an aircraft controllability check, and ATC's cooperation, we found ourselves on final for runway 22 at Houston Hobby. The student was alert enough to spot a smoke stack on our descent path, which ATC had failed to tell us about, and vectored me around it.

Communications were tough both inside and outside the aircraft because of the incoming airstream. We landed despite a 15-knot quartering tail wind and a small hurricane blowing through the missing windscreen. The emergency vehicles and ambulance were quickly alongside us.

At night, you have no warning of a birdstrike. Keep your visor down at all times and make sure your harness is locked. It'll save your face and prevent an unconscious aviator from slumping forward over the controls. I've come to believe that there is no reason to go low on night v-navs. There's no reason we can't do our checks at 5,000 feet instead of 2,000 feet. The increased altitude will give you better comms and navaid reception, not to mention visibility, and most importantly, less bird traffic.

Take advantage of VFR flight-following services on cross-countries or local out-and-ins. Even with that flight plan filed and opened, when you're up and talking with ATC and have a valid squawk, it makes those first, most disorienting minutes of an emergency easier to deal with. The odds of that sea crane striking the aircraft just right so that it came straight down the centerline through our front windscreen were extremely low; nevertheless, we "won" that lottery.◄

LCdr. Graziano flies with VT-28.

A Day of

by Lt. David A. Heathorn

December 25, 1993, a day of firsts: first Christmas on Guam, first holiday season with my new wife, first SAR duty, first rescue… and my first look at a dead body.

I had checked into the squadron in November. I was only a pilot qualified in model (PQM) and had a long way to go to make H2P, a newbee by even the most liberal standards. I was excited about having SAR duty. My wife was not quite as enthusiastic. The HAC was relatively inexperienced; in fact, this mission would be his first SAR as the man in charge.

My beeper went off around 1600. I rushed from the lovely aqua-green cinderblock box we called a home. I lived in a military housing area, which was a 20-minute drive from the squadron, even at top Guam-island speed. When I arrived, the HAC had the crew chief in the copilot's seat with rotors engaged. The crew chief jumped out, I strapped in and within five minutes, we were on our way. We flew direct to the Marboro Caves area, a popular cliff-diving spot, where a Korean tourist had been knocked over the reef.

We found Guam Fire and Rescue (GFR) already on the scene. We were tasked with a coastline search for the 30-year-old male, who was wearing a pair of jeans but no shirt. After about 20 minutes, the crew chief said he saw a GFR diver in distress. We pulled into a 50-foot hover. The HAC had the controls, and the crew chief was making calls to keep us over the diver. I dutifully kept a log of events and monitored the radios.

The crew chief twice asked permission to lower the horse collar, but got no response from the HAC. I motioned to the HAC that I would take the controls, but he shook his head. About that time, the crew chief, who apparently didn't know my name, was screaming for some guy named Jones to take charge in the front. Of course, this demand made things hectic in the cockpit and flustered me. I wrote a note to the HAC which read "Hoist?" He nodded, and I gave permission to the crew chief to recover the diver. We recovered him, then flew him to shore with no further incident.

We returned to NAS for gas and then hurried back to continue the search. While fueling, we discussed what had happened. Apparently, the HAC's ICS was intermittent, and he didn't know he was missing calls. He was fat, dumb and happy up front making the rescue and couldn't figure out why his new PQM was trying to take the controls and steal his rescue. We trouble-shot his helmet and ICS but couldn't find anything wrong. We briefed that if we had to hoist again, I would be at the controls, which would eliminate the ICS problem. It would also put me in the position nearest the coastline, giving me a better reference to maintain a steady hover with the wind down our nose.

Arriving back on scene, we heard that the body had been found. GFR asked us to hoist the body to the ambulance because the boat would have to transport him all the way around the island (the reef made the shoreline inaccessible). We agreed, and with the GFR boat standing by, we deployed our swimmer and recovered the body, this time with me at the controls.

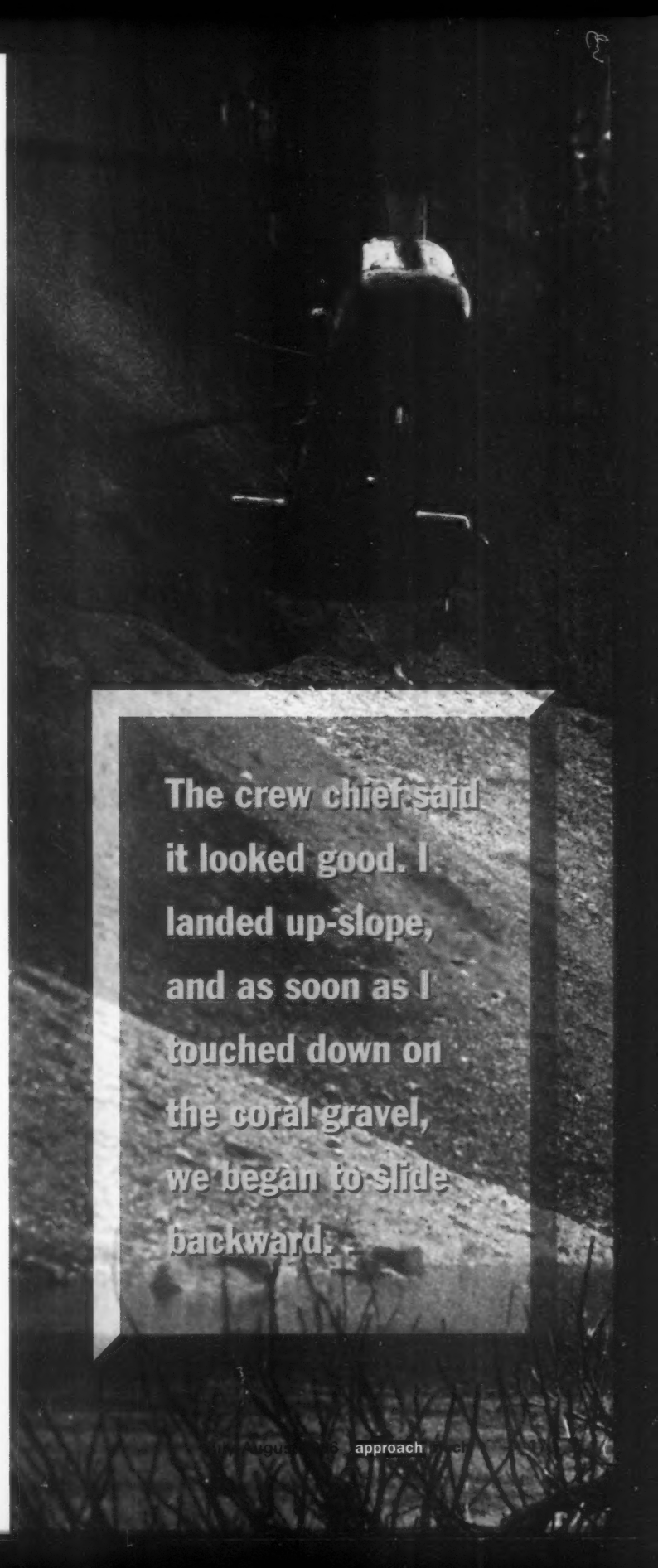
Firsts

Once our swimmer was onboard, we flew the short distance to the ambulance. For some reason, we were all in a hurry. I am not sure why — we had plenty of gas and plenty of daylight left. Maybe it was all the adrenaline, or maybe we all just wanted to get home with our families and eat some turkey. We also forgot our landing checklist. We evaluated the landing site from a slow final approach. The crew chief said it looked good. I landed up-slope, and as soon as I touched down on the coral gravel, we began to slide backward. The HAC pulled collective and managed to call, "I have the controls." I relinquished the controls. He pulled to about a 25-foot hover and said, "OK, let's take a breath. Landing checklist please."

I went through the checks, locked the nosewheel and set the parking brakes. He turned the aircraft 180 degrees, pointing the nose down slope. We unloaded the body and headed for home.

We discussed our lessons learned back on deck. We decided we definitely had a breakdown in communication. I should have taken the controls and then explained what was going on with the HAC's ICS. We should have taken a lap around to evaluate the landing site and to complete the landing checklist. Mostly, we should have just taken our time. The guy was dead. There was no reason for us to take any chances. We decided that although it was a successful day, it could have gone much more smoothly. We filed the experience away, hoping to prevent the same mistakes in the future.

Lt. Heathorn flies with HC-5. He is on deployment with Det 3 in the Persian Gulf.


The crew chief said it looked good. I landed up-slope, and as soon as I touched down on the coral gravel, we began to slide backward.

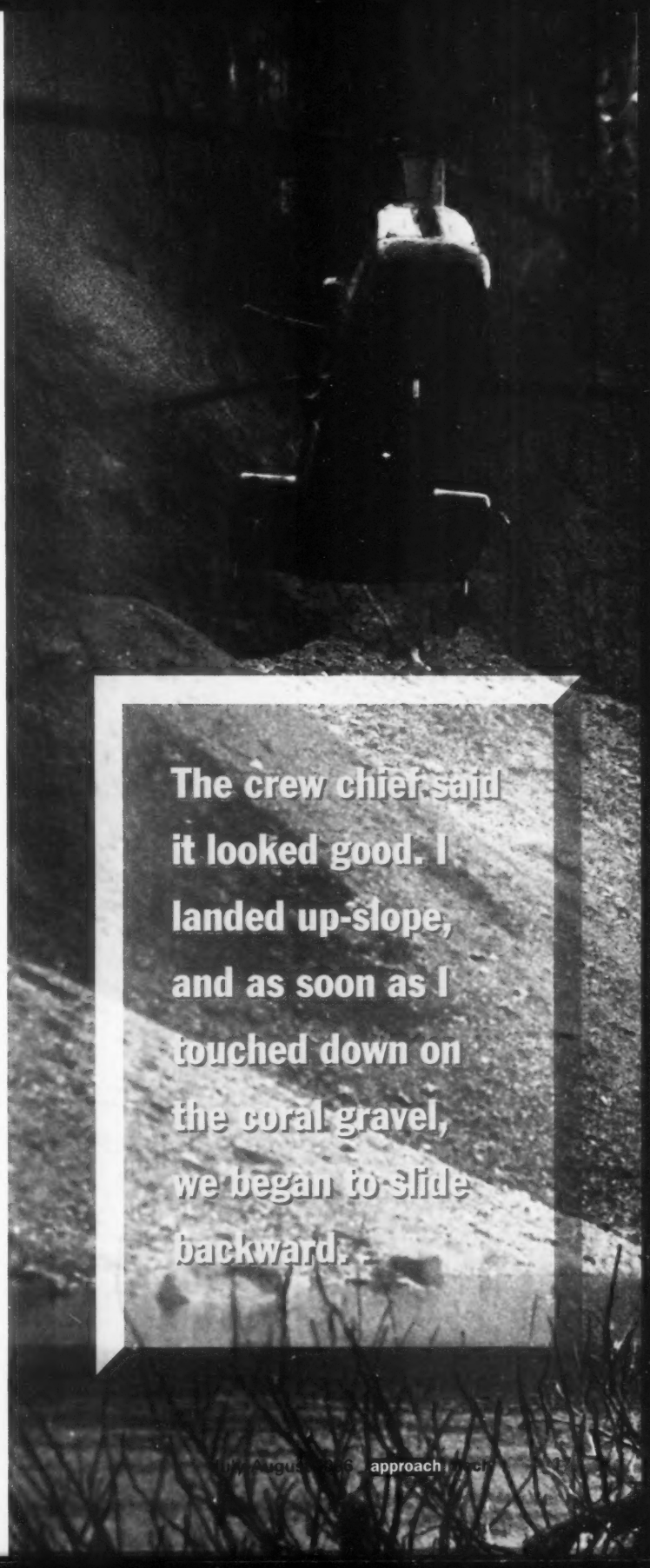
Firsts

Once our swimmer was onboard, we flew the short distance to the ambulance. For some reason, we were all in a hurry. I am not sure why — we had plenty of gas and plenty of daylight left. Maybe it was all the adrenaline, or maybe we all just wanted to get home with our families and eat some turkey. We also forgot our landing checklist. We evaluated the landing site from a slow final approach. The crew chief said it looked good. I landed up-slope, and as soon as I touched down on the coral gravel, we began to slide backward. The HAC pulled collective and managed to call, "I have the controls." I relinquished the controls. He pulled to about a 25-foot hover and said, "OK, let's take a breath. Landing checklist please."

I went through the checks, locked the nosewheel and set the parking brakes. He turned the aircraft 180 degrees, pointing the nose down slope. We unloaded the body and headed for home.

We discussed our lessons learned back on deck. We decided we definitely had a breakdown in communication. I should have taken the controls and then explained what was going on with the HAC's ICS. We should have taken a lap around to evaluate the landing site and to complete the landing checklist. Mostly, we should have just taken our time. The guy was dead. There was no reason for us to take any chances. We decided that although it was a successful day, it could have gone much more smoothly. We filed the experience away, hoping to prevent the same mistakes in the future.◀

Lt. Heathorn flies with HC-5. He is on deployment with Det 3 in the Persian Gulf.



The crew chief said it looked good. I landed up-slope, and as soon as I touched down on the coral gravel, we began to slide backward.

My Training Command SAR

by Lt. Dan Dohmeyer

I choked down an aviator's breakfast, a donut and a Coke, and I was off to Whiting. With the exception of being cut off and stuck behind one of the locals, I managed to make it to the squadron in plenty of time to frantically study my 3-by-5 notecards of EPs.

Today was my sixth fam flight in the T-34C, "a very forgiving machine" as my on-wing would often tell me after I would plant it on the runway. We would concentrate on the fine art of landing at one of the small outlying fields in the local op area. My instructor was a P-3 pilot, and I was lucky enough to be his first on-wing. We got along great inside the cockpit, compared to some of the screamers my buddies had. I actually felt like a contributing factor when we flew, and not like a sandbag who was told to sit back and watch how they do things in the fleet.

We departed North Whiting Field and headed for the landing pattern at Brewton Field, which is also used by civilians. After three landings, we received a call over UHF by the RDO to climb and orbit in the delta pattern. Assuming this was for an incoming light civilian, I was eager to get back into the pattern for more touch-and-goes.

The RDO then told us that the civilian was declaring an emergency. He was on a 10-mile final with engine problems. We tried to spot the crippled plane as the RDO reported that the aircraft's engine had failed. Fortunately, the pilot restarted it.

We weren't the only ones in the Delta pattern. Another T-34C crew from a neighboring VT squadron was monitoring the situation as closely as we were. After a long minute or two of silence on the radios, my instructor spotted the civilian. By the time I saw him, he was about four miles out, at an extremely low altitude.

The next minute seemed surreal as we watched the small two-seater hit the trees. The terrain was covered with 50-foot pines, and the only suitable emergency-landing site was a small creek that meandered through the trees. Although we usually brief SAR, we never expected to be doing it. We broke out of our delta pattern, established a bingo fuel, and began our search to pinpoint the downed plane's position. Along with us came our fellow T-34C aviators, who had also seen the aircraft go down.

We established a safe altitude separation between our two trainers and took the highboy position as the on-scene commander. I had control of the aircraft while my instructor began running through his checklist and establishing our communication assets, including HC-1 in Pensacola. Although this was only our sixth time flying together, we were using the crew-coordination concept exceptionally well.

When we spotted the aircraft, it was overturned and it looked like one of its wings had been torn off. It was hard to believe that anyone could survive a crash that violent. The crash crew stationed at the outlying field had begun making their way to the wreckage in trucks. Their efforts were hampered by the rough terrain, and they had to proceed part of the way on foot. We couldn't talk to the people on the ground, there was no way of telling them where the crash site was.

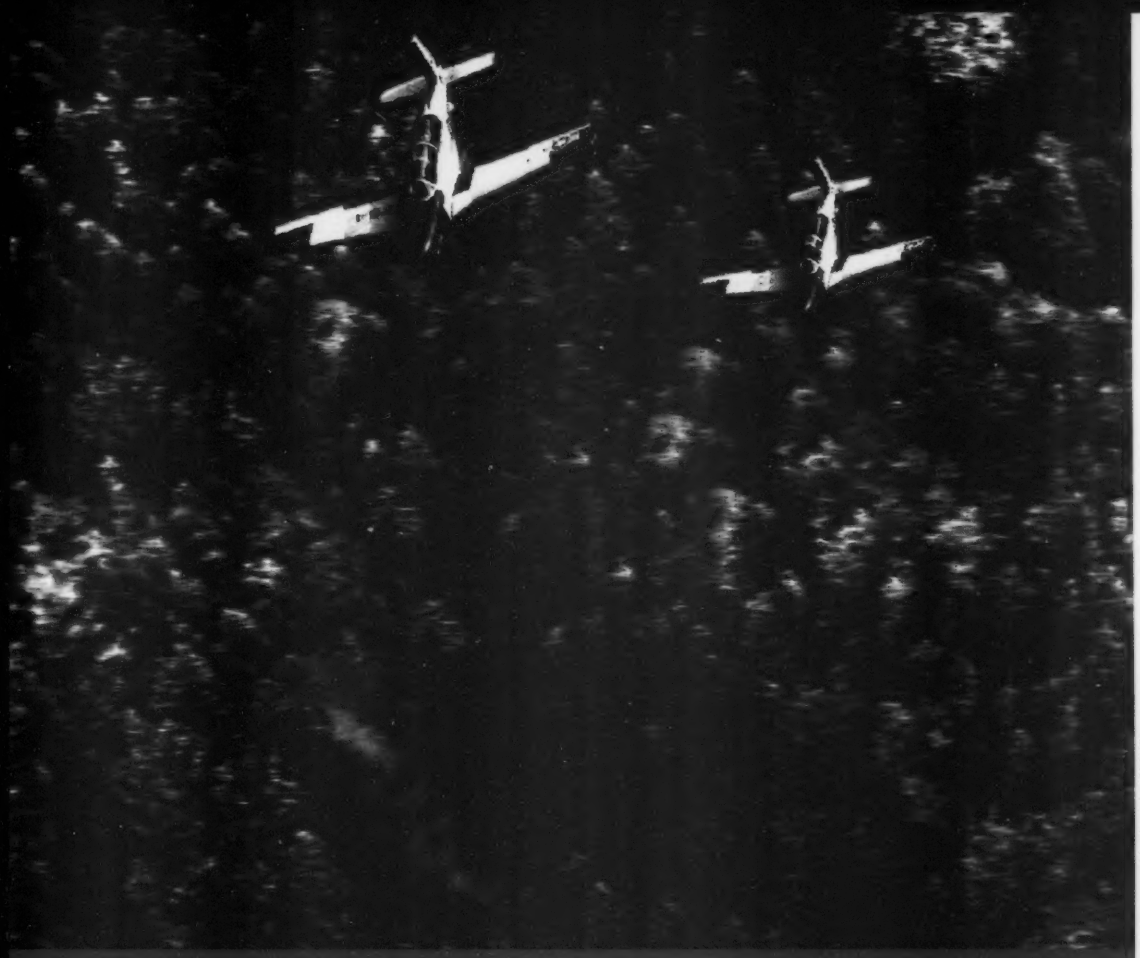


photo composition by John W. Williams

We established a safe altitude separation between our two trainers, and took the highboy position as the on-scene commander.

We finally came up with the idea for the low T-34C to rock his wings sharply on top of the crash site, and after several attempts, they succeeded in marking the spot. The aircraft was buried a foot in the soft ground; miraculously, the pilot was still alive. The medical unit arrived 15 minutes later. We finally reached our bingo fuel, relinquished our on-scene commander responsibilities, and headed back to Whiting.

Many of us get in the habit of not taking the time to do a proper SAR brief. We think we'll have plenty of time to brief SAR procedures in the aircraft as the situation develops. That's not necessarily true, so take the extra time and brief SAR procedures on the ground before you go flying. Then, they can always be tailored in flight to fit the situation. The key to a successful SAR effort in a multi-piloted aircraft is effective crew coordination. Even though it was only my sixth time in the aircraft, my on-wing had enough sense to divide our tasks and not try to be a one-man show.

This story does have a happy ending. The civilian pilot survived. ➤

Lt. Dohmeyer flies with HSL-45. He was with VT-6 at the time of this story.

Making ORM

by Cdr. Giuseppe Donadio

The newest strategy in safety is operational risk management (ORM), but there's nothing new or mystical about it. It has been with us for many years, and aviators have long been proponents of this process. However, we did not know it under the ORM rubric. Instead, we practiced ORM by asking questions that typically start with: "What if…" or, "What is the worst that could happen?" or, "Is it worth the risk?"

Examples of Success:

We believe ORM works, and my command's monthly mishap rates offer some proof. While no two deployments are alike, *Ike*'s 1991 and 1994 deployments provide a convenient comparison for determining ORM effectiveness. ORM techniques were not formalized during the 1991 deployment but were firmly in place in 1994.

Both deployments spanned the months of December through March. In 1991, the number of mishaps for these months ranged from 120 to 150 (Figure 1). In 1994, we recorded 86 to 120 mishaps per month, a 14-percent to 43-percent reduction. The introduction of ORM was certainly one of the key variables that affected this precipitous drop in the number of mishaps.

ORM Model:

How did *Ike* achieve this success? The CO set the tone by issuing a series of memorandums that established the "*Ike* 4 for Safety." These four simple points are easily remembered, mutually supportive, and clearly express the commanding officer's goals.

- Sailors must be trained to do the job.
- Sailors must use proper tools for the job.
- An uninvolved safety observer must participate in every operation.
- A safety brief must include ORM before every activity.

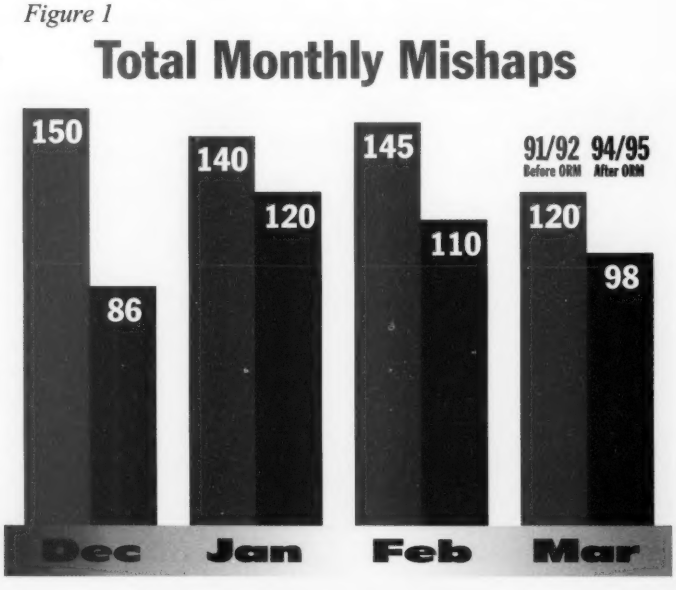
Once the CO's goals were known, the process then had to permeate the command culture. Training started at both ends of the chain of command. Department heads learned about the ORM process from the commanding officer and the safety officer. Each new arrival to the command heard a lecture on "*Ike* 4 for Safety" and ORM procedures from the commanding officer and the safety officer. The safety officer also conducted ORM exercises at enlisted safety committee meetings every month. ORM safety briefs then became an integral part of every operation regardless of its complexity.

To assure rapid adoption, the CO enforced the standard. He was ready to postpone operations and cancel briefs if ORM was not adequately addressed. He canceled a Sea Sparrow firing brief after it became obvious that no one had incorporated ORM.

Ike used ORM in activities as diverse as transferring library material to another ship, live-missile exercises, underway replenishment, and moving the ship into drydock. ORM procedures have also been used to protect our sailors on leave and liberty. During a safety stand-down before Labor Day, all division officers asked their Sailors about their travel plans. Using ORM procedures, the division officers ensured that those Sailors driving long distances had a safe travel plan before they approved their leave requests.

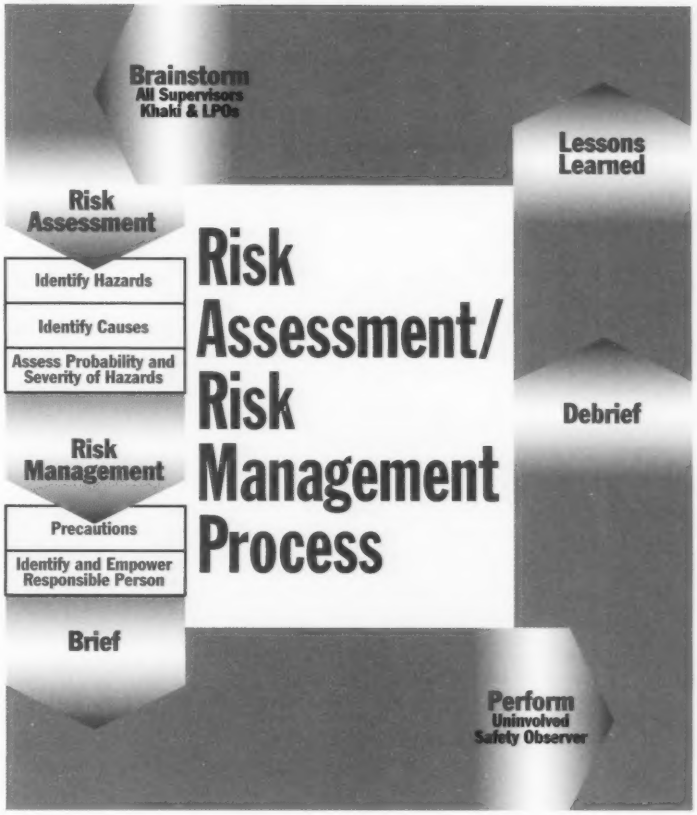
Ike's ORM process is summarized in Figure 2. Before every exercise, supervisors (officers and chiefs) meet with key enlisted personnel to brainstorm the job

Figure 1



Work

Figure 2



from start to finish. They examine each event in detail, identifying the associated hazards and the causes of the hazards. An essential part of the risk-assessment process is considering what might happen and the potential consequences of the hazard. If the hazard is likely to cause a mishap, then that hazard will receive the greatest attention and supervision.

When the brainstorming session turns to risk management, the supervisors develop precautions to control the hazard. But this is only part of the equation. The CO must identify a responsible person who can observe the work, discover other potential hazards and counter them. An essential element of success is giving the responsible person the authority to institute precautions when he or she deems them necessary.

Once the ORM has been completed, the participants of the upcoming activity are briefed. For complex events, the brief is best summarized by a matrix identifying the ORM variables. Figure 3 (see next page) represents a portion of the risk assessment that was done for a NATO Sea Sparrow missile firing. This format identifies the hazards and the person responsible for reducing the risk. Those areas that represent the most probable risk and the greatest threat of damage are highlighted and closely examined during the brief.

Once put into action, "*Ike* 4 for Safety" provides an additional check-and-balance. The uninvolved safety observer is in a position to watch the operation as it develops. Ideally, he will identify a hazardous situation before it develops and make the responsible person stop.

The safety observer may also call time out if he sees an unsafe situation developing. For example, during underway replenishment, an observer is positioned at each replenishment station. He may stop the cargo transfer if people or equipment get in the way.

Every evolution is debriefed to determine how well the plan worked and what unanticipated hazards were encountered. These lessons learned are then fed into the next brainstorming session to further refine the process. The objective is to anticipate all possible hazards and take steps to reduce the risk of injury.

This objective is hard to achieve when you are doing something for the first time. You can't always anticipate the hazards associated with a job. However, the ORM process and the matrix provide the framework to make a comprehensive evaluation of the job and its hazards.

A case in point occurred when *Ike* Sailors were tasked with replacing the acoustic panels in the hangar-bay overhead while in dry dock. There was no shipboard experience and few lessons-learned on this operation. The solution came from the deckplates. The division safety petty officers from the air department, having been trained in the ORM process, thoroughly evaluated the situation and came up with a detailed

matrix. Upon completing the ORM process, the division safety petty officer and his chief correctly identified the need for specialized training, equipment, the specific hazards and their underlying causes.

A carrier's crew is constantly changing and evolving. The hazards change as the working environment is modified. The risks the ship's crew face in dry dock are far different than when underway. Therefore, to be effective the ORM program requires constant attention.

The commanding officer sets the tone and demands that ORM become part of the corporate culture. He does so by insisting that all department heads specifically address ORM whenever they brief him on an upcoming exercise. The department heads will in turn require the same of their subordinates.

Here are some more techniques for building advocacy for the ORM program:

- Reviewing ORM procedures during safety standdowns, safety council meetings, and during regular meetings with the XO, department heads and all khaki.
- Conducting regular training during officer and enlisted safety committee meetings.
- Introducing newly arriving personnel to the ORM process during familiarization and indoctrination training.
- Reminding Sailors via notes in the plan of the day and 1MC announcements to use ORM both on and off the ship.

While the safety department can assist in spearheading the command's ORM program, the program is doomed to failure if it is perceived as only belonging to the safety department. ORM advocates must exist throughout the entire chain of command. They must ensure that ORM procedures are used before every task regardless of the complexity. Only then can you truly answer the question, "Is it worth the risk?" ◄

Cdr. Donadio is the safety officer for USS *Eisenhower*. He is a TACCO whose previous tours include VP-9.

Figure 3

Risk Assessment/Risk Management Process at work

Brainstorm
All Supervisors
Khaki & LPOs

Lessons Learned

Risk Assessment

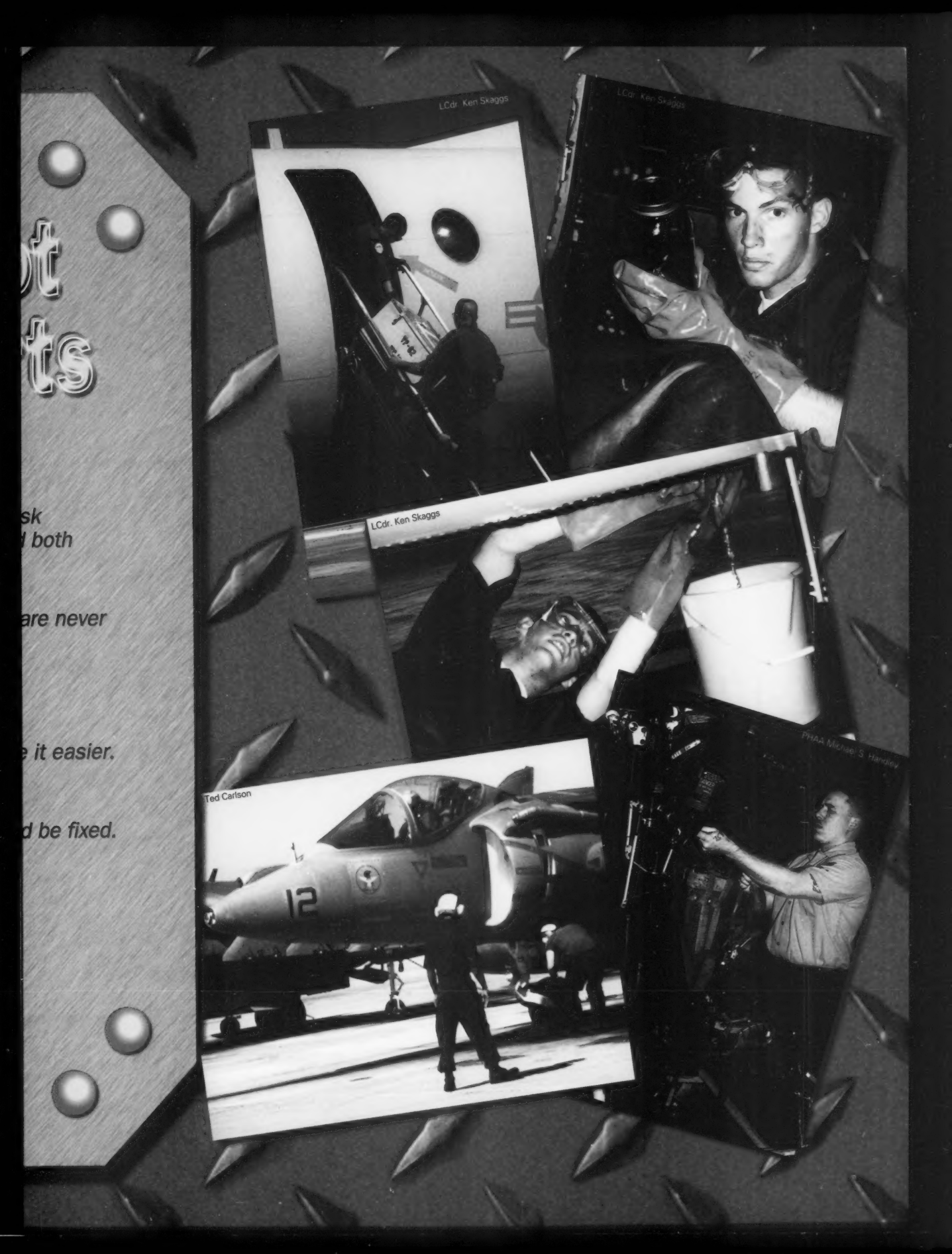
Examples of Risk Assessment for NSSMS Firing

	Potential Explosive Hazard	Injured by Blast or Noise	Toxic Fumes Injure Personnel	Inadvertent Engagement
Identify Hazards				
Identify Causes	Missile Hero Susceptible	Standing in Danger Area	Missile Firing	a) Mechanical or Human b) Improper Range-Clearance Procedure
Assess Probability and Severity of Hazards	Low-Mod	Low-Low	Low-Low	a) Low-High b) Mod-Low
Risk Management				
Precautions	Hero condition set *Ike* Hero Bill during uploading and downloading.	Safety observer stationed minimum of 50 feet from the launcher with a clear view of the cell, not in line with missile axis, facing away from launcher.	If smoke is observed, wait 15 minutes before personnel can approach the launcher.	a) Pre-exercise brief will emphasize use of checklists, weapons release authority, and range clearance procedures. b) All *Ike* radars, lookouts, and safety observers will monitor the area, airwing assets will surveil area.
Identify and Empower Responsible Person	Missile Technician	Safety Observer	Safety Observer	a) Tactical Action Officer b) Tactical Action Officer

Debrief

Brief

Perform
Uninvolved Safety Observer


LCdr. Ken Skaggs
LCdr. Ken Skaggs
LCdr. Ken Skaggs
Ted Carlson
PHAA Michael S. Handley

Crew Coordination Training Isn't Just for Aircrew Anymore

by LCdr. John K. Schmidt, Ph.D., MSC

Naval aviation's newest method of reducing ground mishaps is called groundcrew coordination training (GCT). GCT is a direct outgrowth of the Navy's successful aircrew coordination training program, which has contributed to the overall decline in Class A flight mishaps.

Would you like to reduce the number of Class C aviation ground mishaps (those over $10,000, but under $200,000 or involving serious injury)? A third of those mishaps each year for the last 10 years happened because of poor maintenance-crew coordination. If we develop the crew concept, used by aircrews in the military and airlines, among maintenance and line personnel, we will prevent mishaps.

The Navy's method of reducing Class A flight mishaps with aircrew coordination training (ACT) is an outgrowth of the crew resource management (CRM) program developed by the airlines in the late '70s to address mishaps linked to crew-coordination breakdowns. We've identified seven common skills that when absent, are often factors in aviation mishaps: communication, assertiveness, mission analysis, decision making, situational awareness, adaptability and flexibility, and leadership.

If the maintenance team members aren't talking to each other, then people go about their jobs as individuals. They will look out for themselves, but not for a wingwalker who had crouched in front of a mainmount he was using as a wind break, and who was crushed when the bird moved. In another incident, a man working on a main-rotor head spun it, mangling the hand of someone working on the tail-rotor linkage. Crew coordination would prevent such mishaps.

The seven skills needed:

Communication — Acknowledge what people say to you and give timely information, instructions or commands. Accurate feedback helps people do their jobs and maintains group situational awareness. Problems include passive listening, poor feedback, and non-standard terms and methods.

Example: A flight-deck crew moved a bird for refueling. Later, the Sailor operating the fuel hose walked away. Thinking refueling had been completed, the crew moved the aircraft. The attached fuel hose was ripped out and spewed fuel into the aircraft and onto the deck.

Assertiveness — Be willinging to act, decide, show initiative, and hold your position until convinced by facts. Assertive personnel provide relevant data, raise timely issues, make suggestions, confront ambiguities, explain their position on decisions, and refuse inappropriate requests. Barriers include rank, positional power, inexperience, and personal coercion.

Example: Two Marines were securing a wire bundle in a nose-gear compartment. The senior Marine wanted to move part of the gear assembly and disregarded warnings to use a jack. When he removed the part, the landing gear collapsed on the other Marine. Assertiveness could prevent this from happening again.

Mission Analysis — Coordinate, allocate and monitor crew resources, organize tasks, monitor situations, and provide feedback on what was done. Develop a plan and revise it as the situation changes. Barriers include high ops tempo, time pressure, and personal coercion.

Example: A mission commander sent an ordnanceman for more sonobuoys. The AO drove a panel truck into the hangar by the storage locker, backed up and hit a parked aircraft.

Class A Mishaps

The Navy and Marine Corps had 27 Class A flight, flight relatd and ground mishaps before 31 May in FY96. The following mishaps have occurred since 3 April:

Aircraft	Date	Command	Fatalities
F-14B	04/17/96	VF-101	0
Tomcat crashed while in the landing pattern; the aircrew ejected.			
F-14A	04/18/96	VF-24	1
S-3B		VS-33	0
A CDP parted during a Tomcat trap, killed a Viking flight-deck crewman, and trashed an S-3B.			
F-18A	04/23/96	VFC-12	0
F-18A		VFC-12	0
A pair of Hornets collided during air combat training against a flight of Tomcats. Both aircraft landed safely.			
CH-46E	05/10/96	HMM-266	12
AH-1W		HMM-166	2
The aircraft collided during an NVG mission.			
F-14A	05/18/96	VF-154	0
About seven miles off the cat, an engine malfunctioned; the Tomcat caught fire, departed controlled flight, and the crew ejected.			
A-6E	06/04/96	VA-115	0
Intruder was shot down while towing a target, aircrew ejected.			
AV-8B	06/17/96	NWTS China Lake	0
Harrier departed controlled flight and crashed into the ground eight miles from the base; pilot ejected.			

Class A Mishaps Rate

	FY96 to Date		FY95 to Date	
	No.	Rate	No.	Rate
Navy/Marine	29	2.61	26	2.38
All Navy	18	2.18	16	1.99
All Marine	11	3.84	10	3.51
NAVAIRLANT	3	1.28	3	1.38
NAVAIRPAC	9	3.78	10	4.10
MARFORLANT	6	6.10	3	3.13
MARFORPAC	4	2.93	6	4.31
NATRACOM	2	0.90	2	0.90
NAVAIRRES	3	3.01	1	1.11
4th MAW	1	3.42	1	3.69
NAVAIRSYSCOM	1	4.05	0	0.00
Non-MARFOR	0	0.00	0	0.00
OPNAV	0	0.00	0	0.00

Tear out this insert! Post this newsletter until it's old news, then flip it over as a poster.

Milestones

Command	Date	Hours	Years
HMM-264	04/22/96	66,000	10.5
HS-8	03/16/96	50,000	15
VF-201	12/23/95	7,790	3
VA-34	04/21/96	14,000	3
HSL-37	03/21/96	20,000	3
HT-8	03/11/96	700,000	24
HS-1	04/28/96	88,000	13
VFA-83	04/28/96	7,100	2
VF-41	05/22/96	5,383	1
VP-30	06/10/96	311,000	32
VP-1	06/14/96	78,020	13

The commander failed to analyze how many people were needed to do the job.

Decision Making — Be logical when assessing problems. Make decisions that minimize error and optimize risk management. Poor judgment is a leading cause of mission failure and mishaps. Barriers include inaccurate and ambiguous information, pressure to perform, and rank differences.

Example: A Sailor walked into a paraloft with a lit cigarette and was told to put it out. He put it in the closest thing that looked like an ashtray — the "expended" rocket motor of a salvaged ejection seat. The solid-propellant residue ignited, the seat fired, killed one man and maimed another. The Sailor did not consider the available information in making his decision about where to "put it out."

Situational Awareness — Identify the source and nature of problems, interpret data, keep your eyes open, and detect conditions requiring action. Detect and appraise deviations, potential problems, and show awareness of task status. Barriers include insufficient communication, fatigue, stress, task overload, group mindset, press-on attitude, and degraded conditions.

Example: A civil servant was moving maintenance ladders out to the flight line and drove through the hangar bay. He drove under the tail of an aircraft thinking he had clearance. Unfortunately, the ladders were taller than the bottom of the aircraft.

Adaptability and Flexibility — Alter your course of action based on another's action or changing situation. Remain open to ideas, assist others, keep cool under pressure, and adapt to change. Especially useful if unplanned events come up, emergencies arise, or the crew is shorthanded. Known barriers include confusion, lack of information, time pressure, and unfamiliar situations.

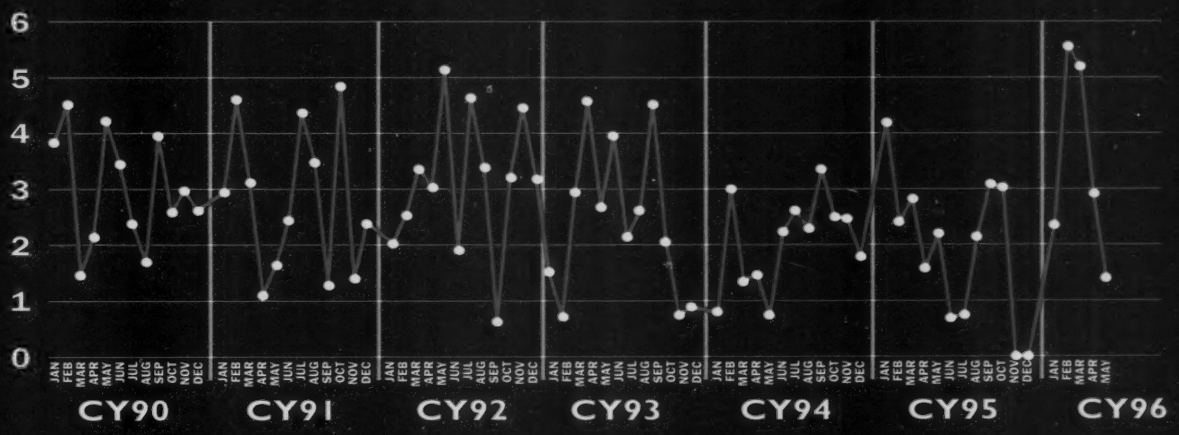
Example: Tinbenders decided to stop-drill a fatigue crack to keep it from spreading. The repair "looked bad" so they put a plate over it. A QAR removed the plate, saw the crack and downed the aircraft. The tinbenders should have been flexible enough to admit that the repair was unacceptable instead of hiding it.

Leadership — Direct crew activities, get them to work as a team. Coordinate, delegate tasks, ensure known objectives, focus on critical issues, keep the crew informed, gather data, give feedback, and create a professional atmosphere. Known barriers include micro-management, poor interpersonal skills, inexperience, time pressure, and unfamiliar situations.

Example: An aircraft-jacking crew damaged the area around a tail-jack pad when they repositioned the jack. A loop in one of the tail-tiedown chains caught on the bottom of the jack stand. As the jack lifted the aircraft, the tiedown chain put tension on the tiedown point and popped rivets in the aircraft's tail-jack-pad area. The brief for the pre-jack checklist now addresses inspecting the chains. The crew was looking at the hookpoint end and failed to notice the binding of the slack chain.

Good crew coordination focuses the eyes, ears, minds, knowledge, and experiences of all the team members to prevent errors that lead to mishaps.

Class A Flight Mishap Rate



Printed as a supplement to Approach Mech by Commander, Naval Safety Center
Data: Dr. Michael S. Borowsky
Design and layout: Laurinda Minke
For questions or comments, call Joe Casto at (804) 444-3520 ext. 7247 (DSN 564)

Some Reasons for N
Sending Hazard Repo

1. **Someone else will send it.**
   To everyone else in the Navy and Marine Corps, you are someone else.
2. **We sent a Hazardous Material Report (HMR).**
   HMRs are not tracked in a data base and were not meant to be used for management. About one-third of HMRs ought to be hazard reports too, a reports are necessary.
3. **Somebody already sent it once.**
   One report isn't exactly the squeaky wheel, especially when some report sent at all.
4. **It won't make any difference.**
   Hazard reports do produce fixes, although not as quickly as we might like
5. **It might not be administratively correct.**
   Format isn't crucial. Some squadrons have fill-in-the-blank forms that ma A slightly incorrect hazrep is better than no hazrep.
6. **It might not be technically correct.**
   Gaps in knowledge or understanding are in themselves hazards that sho
7. **We can't figure out how to fix the problem.**
   OK, let an engineer or a technical expert figure it out.
8. **We'll put someone on report.**
   Hazard reports are educational, not vindictive.
9. **We'll put ourselves on report.**
   Mistakes don't become failures until we refuse to learn from them.
10. **We'll put our boss on report.**
    A career is not as important as a life (especially yours).

by LCdr. Tom Ganse

"You Go Right, and I'll Stay Left!"

by Ltjg. Christine Acton

My fellow SNA and I were in the landing pattern at NAS Corpus Christi on our first solo flight of the T-44. Because of the T-44's restricted visibility, student solos use only a left traffic pattern. However, a right-hand pattern was the normal direction for the active runway this day.

The pattern was already busier than usual because of single-runway operations and a handful of T-34 solos, which pushed tower to the limit. That's when a flight of FA-18s on a cross-country arrived.

We were upwind from a touch-and-go when tower cleared a Hornet for a right break, followed by our clearance for a right-crosswind turn. I promptly told tower I was a solo and that I couldn't comply. I asked for a left pattern. The controller refused and repeated his original instruction, which I again refused.

I finally got a clearance to turn left for downwind. I gave normal calls for the 180 and gear down and got clearance for a touch-and-go.

I continued my approach turn to the 45, intending to make a normal touch-and-go, when I was suddenly aware of a Hornet with the same intentions. On a collision course, I immediately waved off.

With no time to wait for instructions from the tower, the Hornet pilot did the same and called me.

"You go right, and I'll stay left!" I yelled. The tower realized the conflict and began to work with us. We both landed on the next pass.

Later that evening, the Hornet pilot and I discussed our near-miss. We agreed that we had learned several important lessons. First, tower operators can and will make mistakes. Knowing that, all pilots must keep their situational awareness. Both of us should have heard the other being cleared "No. 1" to land.◀

Ltjg. Acton is assigned to VAW-120.

I continued my approach, intending to make a normal touch-and-go, when I was suddenly aware of a Hornet with the same intentions.

Our Bucking

by Lt. Todd Parker

We had just transited the Suez Canal after spending the last six weeks flying over Iraq. Things were heating up (again!) in Bosnia, and we were all excited by the prospect that we might be doing "the real thing" in a few days. En route to the Adriatic, we took a day to fly maintenance check flights and make sure all the jets were ready to go during the heavy fly-days coming up.

I had just returned to the ship from detachment and had not flown off the carrier in a couple weeks. My pilot and I were scheduled to fly a Pro "C," a relatively benign hop that we viewed as a good chance to get back in the saddle. Because neither of us had flown in a while, we decided to brief the flight more thoroughly. We covered all the basics and discussed the flight in detail from start to finish, including just about every problem we could think of. Little did we know how many things can go wrong that aren't covered in the books.

We manned up and started without incident. We launched and completed the profile quickly. There were still 15 minutes until the recovery, so we decided to do some mild-G maneuvers and 1 v 0 ACM.

After doing several sustained-G 360s and a couple of loops, we headed back toward the ship. Because we were still several thousand pounds over our fuel ladder, we decided to do one more sustained-G turn.

We were 270 degrees into the turn when my pilot leveled his wings and asked, "Did you feel that?" All I had felt was the mild buffet normally associated with loaded turns in the F-14, so I replied, "No." He told me he had felt some mild uncommanded pitch oscillations, but that everything seemed fine now.

Proceeding inbound, we got a tally on the other section of Tomcats and set up the rendezvous for a three-plane break. Just as we began our descent to join, our jet decided to do its best bucking bronco imitation — pitching violently nose down, followed shortly thereafter by several positive 5-G and negative 2-G pitch oscillations in rapid succession, mildly painful and very disorienting.

Just as quickly as it began, the violent motion stopped, and the jet recovered itself. But we had lost 5,000 feet and were now at 13,000 feet. My pilot told me that the motion had been completely uncommanded, almost like there had been a flight-control disconnect, and that he now needed forward and right stick to keep the jet straight and level.

Just as we began our descent to best bucking bronco imitation –

I quickly pulled out the PCL and began scanning the procedures for those that seemed to apply, but none jumped out at me. After a quick discussion, we decided we needed to land and asked the Boss for an emergency pull forward. We continued reviewing emergency procedures for several possible causes of our problem, but none seemed to relate to our situation.

Tomcat Ride

PH1 Ronald Beno

In the meantime, the lead aircraft of the other Tomcat section detached his wingman and started a rendezvous. As we described our problem to him, the abrupt pitch oscillations began again — first a severe negative-G pushover, followed rapidly by several positive- and negative-G spikes. As before, the jet would not respond to the controls. Somehow, the aircraft again miraculously recovered itself, and we leveled off at 7,000 feet. My pilot reported that he now needed aft and left stick to maintain level flight. Again, we looked in the book for a possible solution but could find none. I asked the Boss's permission to divert because we did not believe a shipboard recovery would be wise, or even possible.

We began heading toward the nearest divert field, with the other Tomcat now joined to escort us. He checked us over and reported that there did not seem to be any external damage or indications of fire, which was a concern because several Tomcats had recently been lost when fires burned through flight-control rods.

oin, our jet decided to do its pitching violently...

As we steadied up toward the divert and climbed above 10,000 feet for a controllability check, the jet once again started its wild ride. After several seconds of the violent pitch movements, the jet rolled rapidly right and pointed straight at the water. With no response to stick inputs passing 5,500 feet, my pilot called for ejection. Too late; I had already pulled the lower handle.

As I was pulling, visions of my swim training came back to me, and I thought, "You idiot! You just looked down at the handle!" I somehow managed to get my head back in position before the seat fired and remained conscious throughout the whole ejection.

When I felt that miraculous tug of the parachute opening, I looked up and saw that I had a full chute. My only problem was twisted risers. I quickly untwisted them and made a quick check. I was pleasantly surprised to feel no pain and saw that I still had all my body parts. I quickly began scanning the sky for my pilot and saw him several hundred yards away, also with a fully deployed chute.

I yelled to him and got a thumbs-up, so I was now confident that we were going to make it through this rather eventful day.

I began going over my IROK procedures. What the heck did the "I" stand for again? Oh, yeah, "inflate." I inflated my LPU and then tried to release my raft. I tugged on the yellow handle, but no matter how hard I pulled, the raft would not deploy. I again looked over at my pilot, and saw that he had his raft deployed.

Even though it was May, I thought that the water would be pretty cold. I deployed my four-line release and began steering toward him, so that if we had to, we could both get in his raft. To this day, he swears I had my survival knife out to cut him loose and steal his raft!

We ended up landing only 20 feet apart, and I swam over to him. Together, we finally got my raft out and inflated it. Then we hooked our rafts together and boarded them. We could see our escort flying overhead, so my pilot pulled out his PRC-112 and made contact.

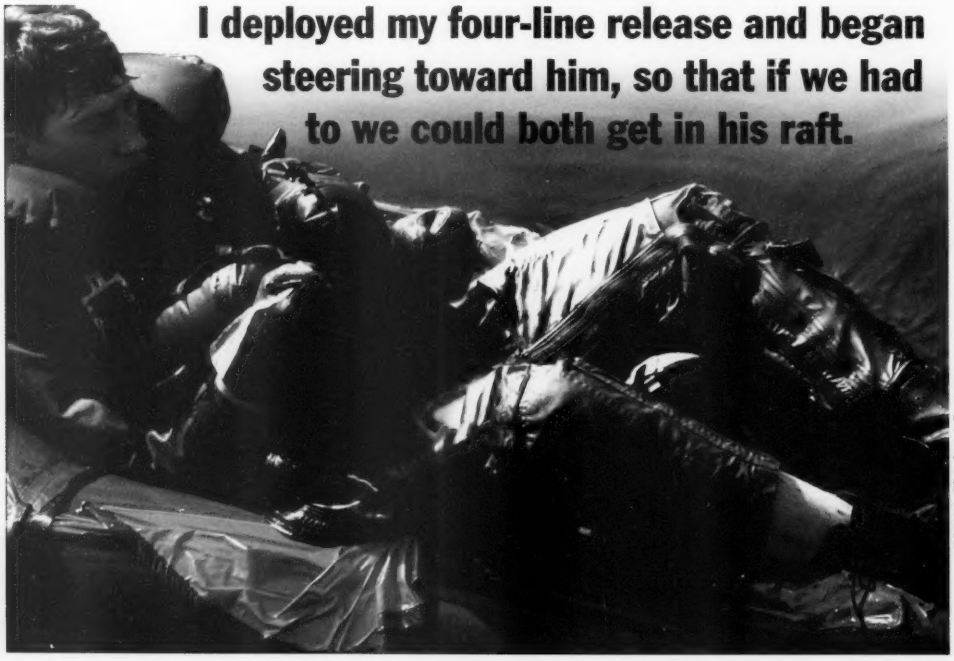
To our surprise, our escort immediately pointed out two helicopters a few miles away. The plane guard had quickly assessed our situation from listening to the radio and was already heading our way when we punched out. We called several turns for the helos and got them pointed straight at us. Although I had pulled out my smoke and flares, I decided not to use them because the helos were about to fly right over us. They saw us and within minutes, we were out of the water and headed back to the ship, alive and unscathed.

Though it happened just a few months ago, it already seems like just a dream. I always thought that it would never be me, that ejections always happen to "the other guy." I was so confident about my abilities in the aircraft that I figured no matter how bad things got, we would always be able to pull it out. Well, I was wrong. Sometimes, there is nothing you can do. No matter how many procedures you go through and how much experience you have, sometimes you need to just get out. The board determined that a material failure of the flight-control systems had been at fault, and there was nothing we could have done to save the jet.

The helo pilots later asked me why I had not used my smoke. I said that since they were heading right for us, I assumed they saw us. They told me that even at 150 feet, a helmet in the water looks just like a whitecap, and that if we had lost radio comm, it might have taken them much longer to locate us.

Once you get back home, you have to give up all your survival gear anyway, so you may as well use it all while you have the chance. They even took my unopened box of Chiclets!◄

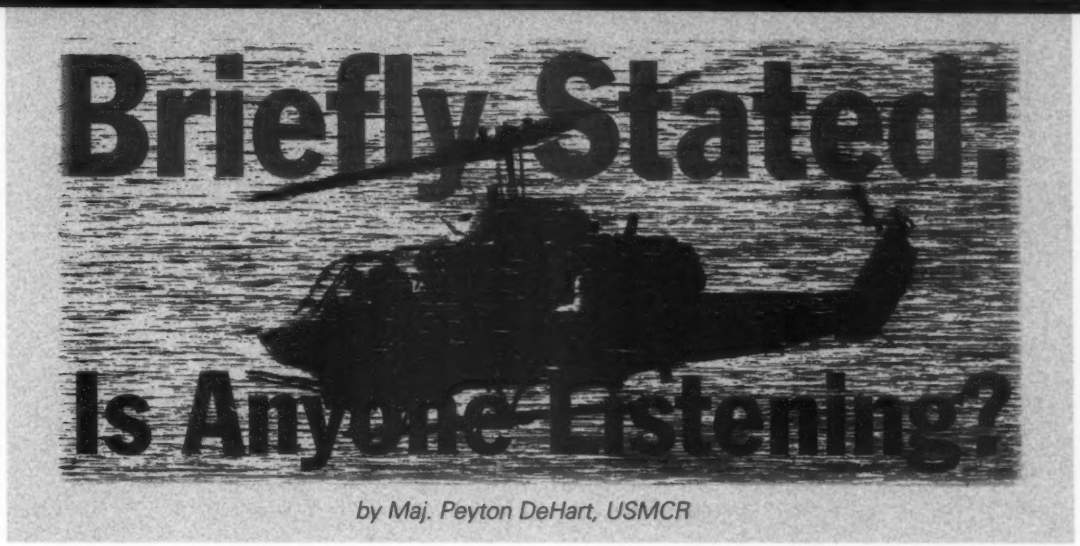
Lt. Parker was with VF-41 at the time of this story. He is now assigned to the Strike Weapons and Tactics School Atlantic.



I deployed my four-line release and began steering toward him, so that if we had to we could both get in his raft.

PR2(AW/FPJ) Chuck Denton

Briefly Stated: Is Anyone Listening?



by Maj. Peyton DeHart, USMCR

California was blanketed by a marine layer, with a floor at 600 feet and a top at 4,000 feet, from San Diego to Sacramento. Since my mission was an instrument hop for an "X" at the FRS, the weather seemed perfect.

We shot out of the clouds and flew in VMC from Camp Pendleton to Bakersfield, our destination. Bakersfield is in the middle of a flat valley, but is bordered on three sides by a mountain range. Not a tight fit, but something worth noting if you're in actual IFR.

Bakersfield Approach gave us a vector and clearance to set up for an NDB approach. We descended into the clouds. Two minutes later, we broke out in a one-mile sucker hole, clear from the deck to the moon. I told the student to write down the location of the hole. It might come in handy if we had a missed approach.

We swiftly crossed the hole and punched back in the clouds. We motored some more, waiting for approach to give us the vector to final because we weren't yet close enough to lock onto the NDB's signal. Feeling edgy, like we might be straying too close to a mountain range, I called approach to ask about our expected further clearance time. No answer. More attempts on that and alternate frequencies raised neither approach nor any other agency.

I rapidly went from calm to frantic as I imagined I hadn't heard approach when they must have told me to turn. I dreaded seeing a wall of rock materialize out of the cloud 10 feet in front of me. I racked my brain trying to figure what to do. I could fly back to the sucker hole and hope it hadn't moved, but what terrain was between me and it? I could get back to VFR-on-top, but how would I get down for the NDB approach? I just knew that I couldn't go forward much longer, because in the mist lay the mountains.

I had options, but none of them was great. I couldn't decide which one was more desirable. I told the student that I was pondering the next course of action when he piped up, "During the brief, you said that you would use your PRC-90 if we lost communications. Are we not going to do that?"

I was stunned. I must have given the same canned brief 300 times. Had I really listened to myself, or was I just chanting the required NATOPS mantra before going flying?

We broke out the PRC-90s and talked to approach on guard. They vectored us away from cumulogranite and set us up for the NDB approach, which we flew without incident.

Once on the ground, we found that the cable running from the radio to the antennae had disconnected at the antenna end. Easy fix. I also had to adjust the attention level I gave to my own brief. I'm glad the copilot was listening!◄

Maj. Dehart flies with HMA-773 and is a frequent contributor to *Approach Mech*.

Is That Mt.

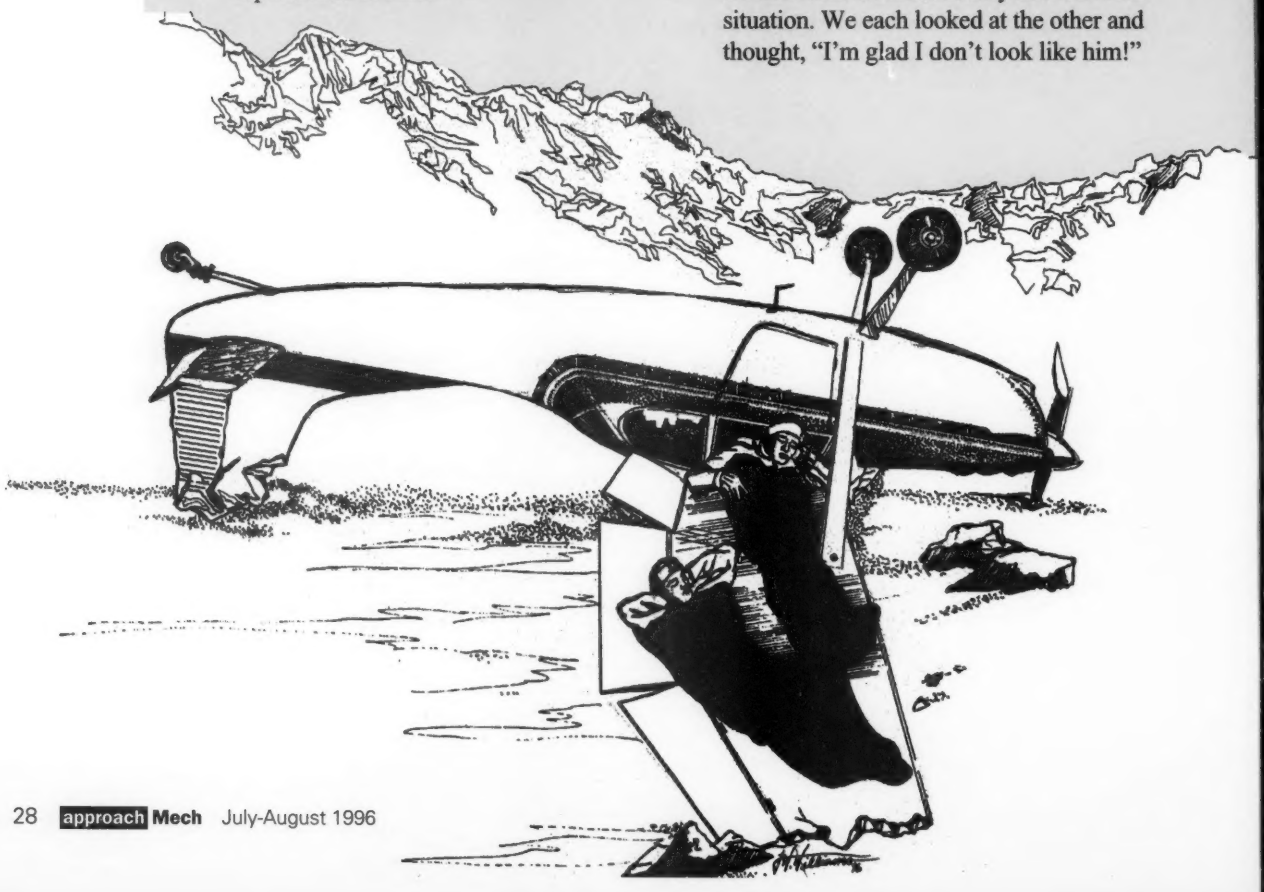
by Lt. Harry Hirschman

What do you do when you find yourself in a light plane that has come to rest upside down in the mountains? I lived to answer this question after a friend and I crashed his Cessna 180 in the Sierra Nevadas, 10 miles south of Mt. Whitney.

Naval aviators spend a fair amount of time preparing for emergencies, including what to do after a crash, and many of us fly civilian airplanes in our spare time. How prepared are you and your family to survive a crash in the civilian airplane you fly on weekends? Our crash was a humbling experience for us because we are both experienced aviators.

I am on active duty. My friend got out two years ago. We were returning from a camping trip, and we had a tent, two sleeping bags, heavy clothing, some water, and some food. We also had a hand-held radio, some flares, a signal mirror, and a first-aid kit. Not a bad start. We had everything from pencil flares to a survival radio. It would only cost $200 to equip yourself with the items you're already familiar with (except the survival radio) through commercial sources–a bargain if you ever need it.

After wriggling free from the wreckage, we did what comes naturally in a survival situation. We each looked at the other and thought, "I'm glad I don't look like him!"



Whitney?

We had cuts on our faces, chipped teeth, and we were bleeding from cuts on our stomachs. I learned later I had a broken rib. Although our injuries were serious, they were not immediately life-threatening. Shock was more of a threat. The ground around us was muddy from melting snow, and the only dry area was on the undersurface of the aircraft's wing, which was now upside down. After treating the obvious wounds as best we could and activating the emergency-locator transmitter, we tucked ourselves under our sleeping bags on the wing and tried to collect our thoughts.

We woke up one-and-a-half hours later, having obviously underestimated the seriousness of our condition. We had stiffened up, and our ability to help ourselves had decreased drastically with time. As the hours went by, the pain from our injuries grew more intense, and we became even less mobile. Fortunately, a private pilot found us. It wasn't long until we heard the sound that every survivor wants to hear: rotor blades heading our way. An SH-60 from HSL-47 was on an extended training flight in our area, and its crew was participating in the rescue.

We learned several survival lessons that day. Stay on top of first aid and shock prevention. First aid is easy in the classroom, but not when the person giving first aid is as bad off as the person getting it. You should also continue giving first aid after the first application.

Take stock of everything you have. Open everything and organize it. We didn't use some of the first-aid gear we had because we didn't sift through the wreckage thoroughly. My friend's jaw was badly hurt. We thought he had used his Navy nav bag to carry charts. Although we dragged out the bag, we never checked its contents. If we had, we would have found bandages we could have used on his jaw.

My friend couldn't move, and he was barely able to reach and operate the day-night flare...

Keep signaling devices on you and ready for use. I was across the meadow, trying to set up our tent, when our rescuer found us. My friend couldn't move, and he was barely able to reach and operate the day-night flare, even though it was lying only a few feet from him.

Use the mirror. As a CSAR survivor during an NAS Fallon air-wing detachment, I learned how powerful a signaling device the mirror is, but we didn't use it here. Don't assume people in rescue aircraft see the crash site. Our rescuer had been told the site was 10 miles from our actual position and happened to spot us while en route. It seemed to us that he was headed directly for us the entire time. A mirror flash would have erased all doubt.

Be prepared to spend the night. If we hadn't had radios, the rescue effort would not have begun until the next day when people back home would have missed us. Spend some money on survival equipment, especially if you're flying over remote areas. ◄

Lt. Hirschman flies with VFA-151.

BRAVO ZULU

BZs require an endorsement from the nominating squadron's CO and the appropriate CAG, wing commander or MAG commander. In the case of helo dets, the CO of the ship will suffice. A 5-by-7-inch photo of the crew by a squadron aircraft should also accompany the BZ nomination. Please include a squadron telephone number so we can call with questions.

VF-201

Lt. Hume and LCdr. Hodge

LCdr. Mark Hodge
Lt. Craig Hume

Immediately after a touch-and-go during an FCLP hop from NAS Dallas, Tower told Hunter 113, "You've lost your mainmount!"

LCdr. Hodge (RIO) asked Lt. Hume (pilot) to check the hydraulics, which were holding steady at 3,000 psi. They also had 7,000 pounds of fuel, giving them time to consider their options.

The crew decided to fly to a local field with the widest runway.They asked for an LSO and had the short-field arresting gear derigged. Overhead Fort Worth, they discussed the best configuration and potential landing problems.

The LSOs arrived on station and suggested the F-14 crew burn down their fuel to 1,500 pounds. LCdr. Hodge and Lt. Hume agreed to try landing on the far right edge of the runway with a minimum sink rate. They would hold the left stub off the runway as long as they could.

Lt. Hume would engage nosewheel steering after touchdown and try to compensate for the anticipated left drift. The crew flew a flat, low-sink-rate approach, landing precisely on the right runway-edge line, holding the left stub off.

After the stub touched down, the aircraft began pulling left, but Lt. Hume countered with nosewheel steering. The Tomcat stopped 5,000 feet down the runway with minimal damage.

Inspection revealed a failed inner-wheel bearing, which allowed the tire to separate from the main-landing-gear strut.

AD1 Chadwick, Cdr. Stedman and Lt. Robinson

Cdr. William Stedman
Lt. Greg Robinson
AD1 Jene Chadwick
HM2 Brian Steele

VXE-6

The crew was returning to NAWS Pt. Mugu when tower told them about a downed Army helo and asked for help with the SAR. The Army aircraft had gone down with seven people in a steep ravine and thick pines in the Los Padres National Forest. Several other aircraft were already on scene, including an E-2C, a USAF UH-1N, an Army

Reserve UH-1H, and a Jet Ranger from the Forest Service. There was only one potential LZ at the bottom of a steep canyon, but the crews of the three other helicopters had judged the area to be too confined and too rugged to try a landing.

The VXE-6 crew decided that though the LZ was tight, it was workable. Avoiding trees, they flew down the narrow ravine and hovered over the zone. Lt. Robinson (HAC) gently lowered the HH-1N toward the rocky ravine below, while AD1 Chadwick (crew chief) and HM2 Steele (second crewman) guided him past the trees and large rocks.

Once in a low hover, Lt. Robinson placed the aft portion of his helicopter's skids on two boulders, allowing his crewmen to get out. The two petty officers began building up solid landing points under the forward part of the skids, which eventually permitted Lt. Robinson to establish a power-stabilized, four-point landing. The Huey's tail-rotor blades were only two feet from another boulder, and the main-rotor blades were five feet from surrounding trees and brush.

While Cdr. Stedman (copilot) remained with the Huey and handled communications, Lt. Robinson, AD1 Chadwick and HM2 Steele climbed the nearly vertical walls of the ravine to reach the crash site, angering a nest of hornets on the way. Despite being stung by the irritated insects, the three men reached the site. They gave first aid and prepared to carry the two crewmen with the worst injuries back to their helicopter.

After carrying the litters back down the steep incline, the VXE-6 crew made a low-power margin takeoff from the confined LZ. They transported the victims to a nearby hospital, returned to the crash site, landed in the same spot, and recovered the remaining victims.

Maj. Dietrich, MSgt. Beers, LtCol. Joseph, Cpl. Baier, GySgt. Carroll and Sgt. Fivecoate

VMGR-234

LtCol. Jameel F. Joseph, USMCR
Maj. Thomas F. Dietrich, USMCR
MSgt. Mitchell W. Beers, USMCR
GySgt. James L. Carroll, USMC
Sgt. Gregory S. Fivecoate, USMC
Cpl. Aric J. Baier, USMC

Bear 02 was climbing out from Memphis International Airport. Passing 500 feet AGL after the night takeoff, the crew retracted the flaps from their 50-percent setting. The KC-130T began a slight uncommanded roll initially to the left, then to the right, followed by a strong yaw to the right. LtCol. Joseph (AC) had to apply full left rudder and large aileron inputs to maintain level flight.

Immediately before the uncommanded yaw, Maj. Dietrich (copilot) called, "Flaps indicate up." GySgt. Carroll (loadmaster) replied from the cargo compartment that the flaps were not up. After checking, Cpl. Baier (flight mechanic) determined that the left inboard flap had not fully retracted.

The pilots stabilized the aircraft at 170 KIAS and 900 feet AGL to check controllability, while Sgt. Fivecoate (navigator) coordinated a return to Memphis. Roll control was sluggish, requiring large rudder movement to maintain directional control.

Bear 02 climbed to 3,000 feet, and the crew declared an emergency. At this time, MSgt. Beers (flight engineer) reviewed NATOPS and computed the 0-percent flap landing speeds while ATC vectored the aircraft for a straight-in approach to runway 36L, the longest runway at Memphis.

The Hercules touched down 800 feet from the approach end at 140 KIAS. At the AC's command, MSgt. Beers neutralized rudder trim during rollout. Following NATOPS, the crew delayed reversing the prop until the KC-130 had slowed below 115 KIAS.

Inspection showed that the flap had separated from its connecting linkrods and become wedged against the fuselage as the outboard side extended to approximately 86 percent.

AD2 Hran Schlund
VRC-30

When a C-2's engines started for a SOCAL CV mission, AD2 Schlund, a powerplants troubleshooter, noticed movement of the stationary butterfly panel on top of the engine nacelle. On closer inspection, he discovered the panel had broken and separated from the frame and skin surface.

Because of its location, the fluttering panel would probably have gone unnoticed by ground or aircrew personnel and departed the Greyhound in flight. AD2 Schlund prevented a possible in-flight emergency.

AE1(AW) Allen Cline
VF-14
by Lt. Jim Nolan

I noticed a slow roll-response to port and had to increase left stick to maintain straight-and-level flight. The port wing was at 20 degrees, the starboard at 45. The Tomcat was at 500 feet AGL, 480 knots and 5 units AOA. I climbed to a safe altitude and decelerated to 250 knots.

During the climb, the starboard wing swept aft to 68 degrees, but the port wing stayed at 20. We followed the NATOPS checklist for asymmetric-wing sweep and landed. We hook-skipped the long-field gear, but stopped in the overrun after 14,000 feet. This was the first F-14 to land in this configuration.

Troubleshooters found a sheared wing-sweep drive, interconnect shaft and an inoperative starboard wing-sweep motor. They saw metal shavings in the hydraulic ports of the motor and severe chafing of the interconnect shaft from rubbing against the firewall shield near the break. The shaft failure enabled the starboard wing to continue slowly aft to 68 degrees.

AE1(AW) Cline recognized a serious fault in the NATOPS procedures. With the wing-sweep handle at 20 degrees and the auxillary-flap CB pulled (per NATOPS), the wing-sweep handle would not move aft, thus preventing a symmetric landing. This major flaw in NATOPS procedures has been corrected. AE1 Cline was awarded the Navy and Marine Corps Achievement Medal.

Lt. Nolan was the pilot during this incident and is QA officer of VF-14

AN Richard E. Kidder
AN Lacy Hinton
AMSAN Manuel Arzateduran
VF-84

Plane captain AN Kidder connected an NC-8 to aircraft 204 to check the Tomcat's fuel. After turning on electrical power and climbing into the aircraft's cockpit to read the fuel gauge, he noticed smoke coming from under the hood of the NC-8. He investigated the cause of the smoke and determined it to be an electrical fire burning near the NC-8's starter.

He told AN Hinton, his second mech, to get a Halon fire extinguisher to put out the fire while he disconnected electrical power from the Tomcat. Meanwhile, AMSAN Arzateduran, who saw the fire, got another Halon fire extinguisher and began fighting the fire. AN Hinton and AMSAN Arzateduran expended three extinguishers before the fire went out.

AN Kidder, AN Hinton and AMSAN Arzateduran extinguished the fire before it could cause significant damage to the NC-8, the fully fueled F-14 and the rest of the flight line.

GySgt. Andy P. Ford, USMC
Cpl. Jason Zirbel, USMC
HMM-164

GySgt. Ford and Cpl. Zirbel noticed unusual rub marks on the tail boom of a UH-1N, aft of the starboard elevator's trailing edge. The helo had flown a training mission, maritime interdiction board-and-search, in support of special operations on board USS *New Orleans* (LPH 11).

Doubting the marks were caused by incidental contact, they removed the elevator assembly. Three of the eight rivets that secure the control tube to the

elevator surface had sheared, and cracks surrounded a fourth rivet.

Had the aircraft continued to fly, the remaining rivets could have failed and jammed the elevator, causing loss of cyclic control or a catastrophic tail-rotor failure in flight because of the departing elevator.

GySgt. Ford's and Cpl. Zirbel's find prevented serious damage to the aircraft and an in-flight emergency.

JO1 Alan Baribeau

AO2 Brice E. Selby
VA-115
by JO1 Alan Baribeau

AO2 Selby found a piece of metal while working on the flight deck. He realized the FOD came from an aircraft. It was an inch long and shaped like a half moon. He brought it to his squadron's flight deck coordinator, thinking the FOD came from one of VA-115's Intruders, but it hadn't.

AO2 Selby then presented the FOD to the VFA-195 flight deck coordinator, who, with the help of his squadron's QA staff, determined that the FOD was part of a Hornet's main-landing-gear trunion pin. It holds the MLG strut in the down position when the gear is extended. If the pin had come out of a knuckle assembly, the landing gear could have collapsed upon arrestment.

All CVW-5 Hornets were grounded and checked for the missing pin. Within two hours, USS *Independence (CV 62)* resumed flight operations when inspectors determined that the pin had come from a Hornet in VFA-195.

AO2 Selby's find earned him the Navy and Marine Corps Achievement Medal.

JO1 Baribeau is in the public affairs office of the USS *Independence* (CV 62).

Sgt. Samuel Sandoval, USMC
HMM-166

While doing a 7-to-14-day inspection on a CH-46E, Sgt. Sandoval found a pin protruding from the aft vertical-drive shaft. He had the foresight to inspect the remaining squadron helicopters and found a second aircraft with a pin protruding from a vertical drive shaft.

Pin protrusion on the aft vertical-drive shaft indicates impending drive-shaft failure. Sgt. Sandoval's find identified a hazard that could have caused two in-flight emergencies.

Gold Eagle Photo Lab

AME3 Gregory Allen Wallace
VA-196

AME3 Wallace was checking LOX on an aircraft on board USS *Carl Vinson* (CVN 70). Noticing an incorrect reading in the cockpit, he determined that something was wrong with the port LOX bottle. He removed the bottle and took it to the LOX-staging area just aft of the weapons-staging area. Once there, he heard a pinging sound coming from the bottle, so he checked it for venting. It wasn't venting, and the bottle began to shake and bulge at the outer bands.

AME3 Wallace knew the area he was in contained volatile equipment, such as LOX bottles and missiles. Realizing the increasing potential for disaster, he threw the faulty bottle overboard.

AME3 Wallace's quick decision prevented a possible mishap and won him the Navy and Marine Corps Achievement Medal.

JO2(SW) Terry J. Burnley

SSgt. Clifford C. Boehnke, USMC
VMAQ-4

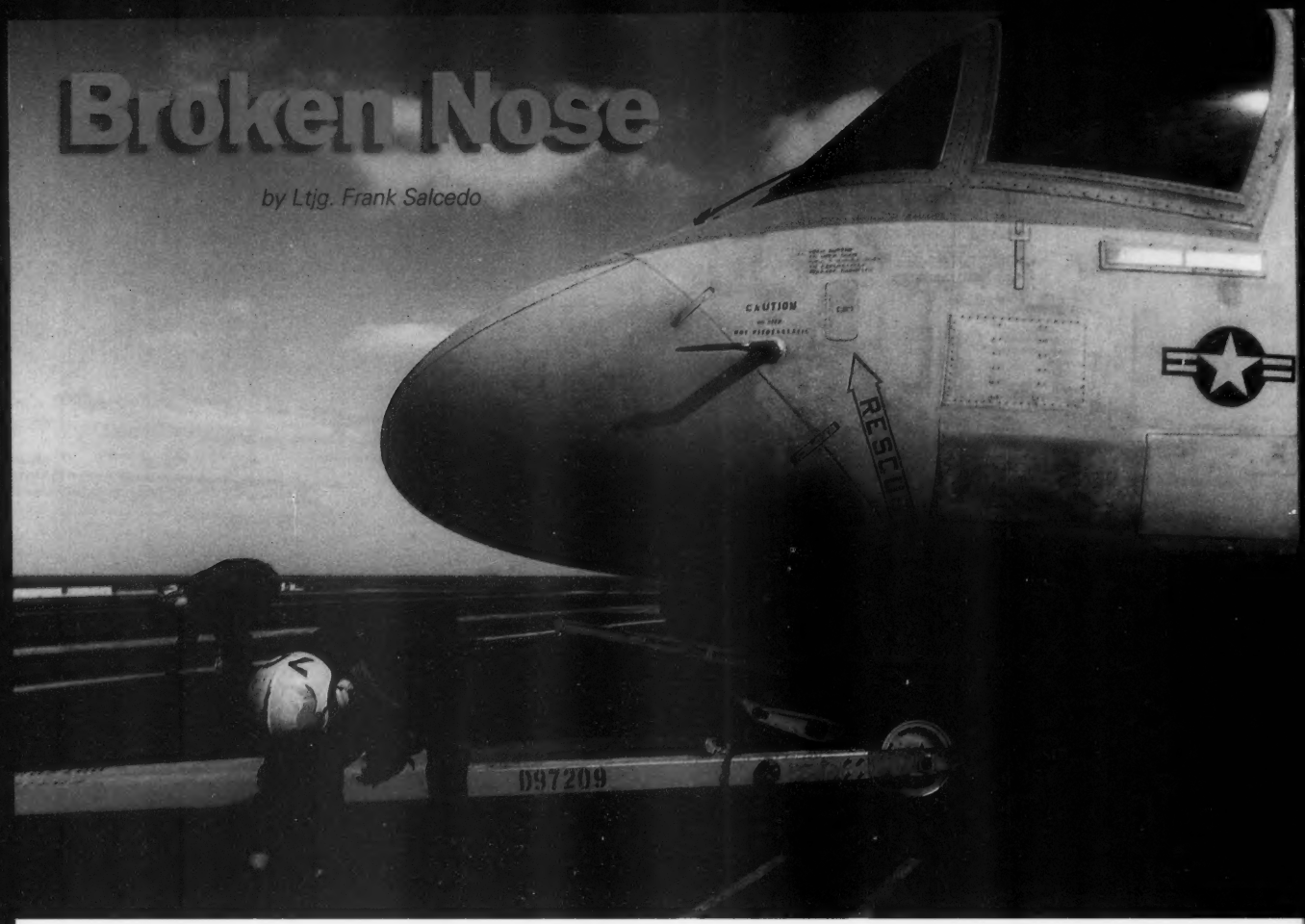
Two EA-6Bs were taxiing for a morning launch in support of Operation Hornets Nest 94. SSgt. Boehnke was the QA monitor for the launch. He noticed something fall off Dash 2 as it taxied. Realizing this was serious, he ran to maintenance control to call the aircraft back to the line.

Close inspection of the nose wheelwell revealed that the up-lock fitting had fractured and fallen off the aircraft. The up-lock fitting is an integral part of the nosegear retract and gear-doors actuator system. Investigators determined that the nosegear could have hung up or collapsed on takeoff or landing.

SSgt. Boehnke prevented an emergency and further damage to the aircraft.

Broken Nose

by Ltjg. Frank Salcedo



It was one of those dark, windy, rainy nights you only seem to hear about from the more senior guys in the squadron. A light rain was making the deck very slippery with winds exceeding 40 knots. Our aircraft was parked in the crotch, perpendicular to the bow.

When the pilot and I finished our preflight, we climbed in to start the engines. The SENSO also entered the aircraft to load the acoustic tape. To our left was a manned-up FA-18. As we were strapping in, our aircraft began to turn to the left. The wind caused our bird to weather vane, snapping the port tie-down chains and rotating us about the starboard mainmount. The nose of our aircraft hit the leading edge of the alert FA-18's starboard wing, slowing our rotation enough for the flight-deck crew to throw chocks under our wheels.

We tried to stop our aircraft with the emergency brakes, but the emergency-brake accumulator had bled down too much. No power was on the aircraft, so the chocks were the only thing keeping us from going over the side. The pilot in the FA-18 later told us we had so much torque on the aircraft that if we hadn't hit him, we probably would have snapped the tie-down chains on the starboard mainmount and gone overboard.

Since this incident, we fold the vertical stabilizer of all S-3Bs parked in the crotch perpendicular to the bow. We also learned to preflight the emergency-brake accumulator — it's too easy to assume it is charged.◀

Ltjg. Salcedo is assigned to VS-37.

Tie-down chains won't stop an S-3B from weather vaning in high winds if you don't fold the tail.

A Wrenching Mistake

by Lt. Chad O. Dorr

An H-60 had been released for flight with all tools presumably accounted for… but they weren't. During the tool turn-over, maintainers couldn't find a tail-pylon, fold-lock wrench. The ship notified the Seahawk, which turned around and came back.

Maintainers found the tool in the starboard I-beam of the H-60's tail bumper (see photo). The bumper's location near the tail pylon and the stabilator fold-lock pins was a convenient resting place for the lost wrench.

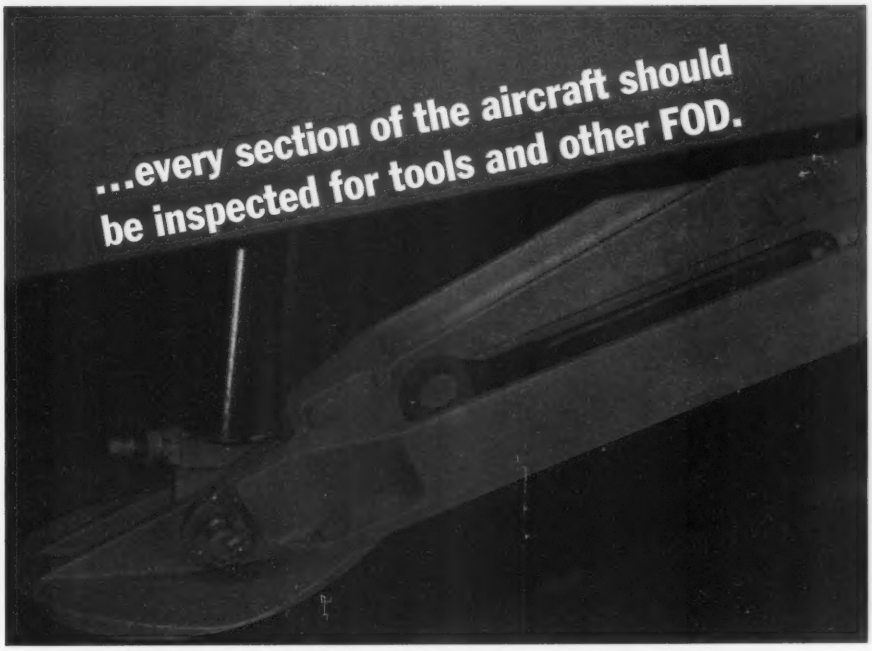
The det MO predicted where it would be found because a similar incident had happened on his first cruise. Another aircraft commander, the assistant MO, also had a lost wrench turn up on the I-beam during his first cruise — apparently a common problem in the Seahawk community.

The crew thought they'd preflighted the aircraft thoroughly. Inspecting the tail, the pilot had grabbed the I-beam and swung underneath the tail bumper to check strut extension and pad damage.

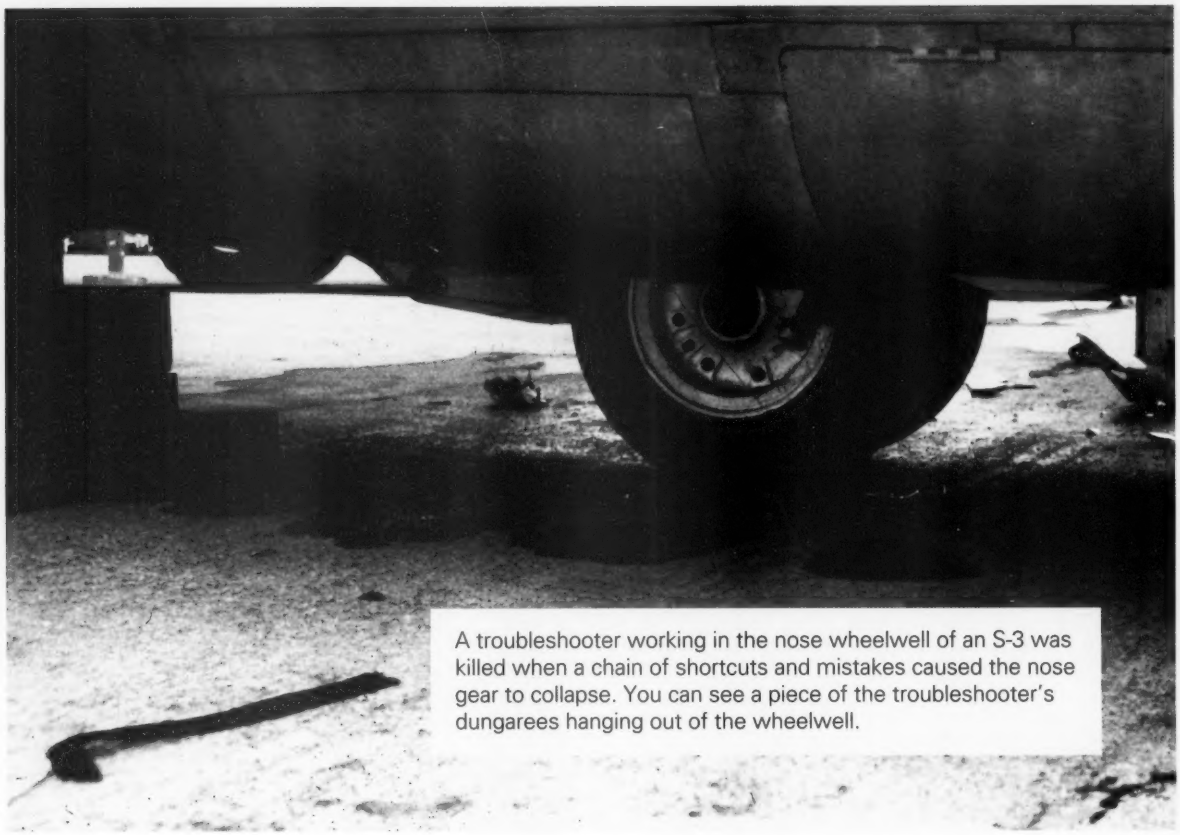
Although this check is all NATOPS calls for during the preflight, aircrews should remember that every section of the aircraft should be inspected for tools and other FOD. If the pilot had glanced at the top side of the bumper assembly, he would have seen the wrench.

Despite this incident, our tool-control program worked. The one mistake that could have led to a mishap—the incorrect ATAF sign-off—was soon discovered, and a possible mishap chain of events was broken. ◄

Lt. Dorr is with HSL-47.



The tail bumper of an H-60 must be a convenient place to rest a tail-pylon, fold-lock wrench. People keep leaving them on I-beams.



A troubleshooter working in the nose wheelwell of an S-3 was killed when a chain of shortcuts and mistakes caused the nose gear to collapse. You can see a piece of the troubleshooter's dungarees hanging out of the wheelwell.

Who's on First?

by Robert A. Alkov, Ph.D.

After replacing a trailing-edge-flap indicator, an AM placed metal tape on the weight-on-wheels (WOW) proximity switch for a drop check. A functional check flight (FCF) followed as night check came on duty.

After takeoff, the aircrew couldn't raise the landing gear until they pressed the down-lock override button. As the gear retracted, the aircrew saw an intermittent launch-bar-fail caution light and AFCS problems. They aborted the flight and returned to base.

Meanwhile, the now off-duty AM phoned his work center's night shift to tell them he had forgotten to remove the metal tape from the WOW switch after the drop check. A QAR had missed this because he didn't follow the MIMs.

The night-check supervisor talked it over with the plane captain. They concluded that once they removed the tape, the aircraft could relaunch. The aircrew, who weren't informed, did the pre-shutdown checklists. They considered the flight complete and did not plan to relaunch. They secured the starboard engine and started the APU.

A troubleshooter told the night-check supervisor and the plane captain to have the pilot reset the

landing gear. Then he entered the port wheelwell, chocked the main mount and removed the metal tape from the WOW switch.

The off-duty division CPO, who had been jogging, returned to maintenance control to check on the FCF. Still in jogging clothes, he put on a cranial and walked to the aircraft to tell the crew that the metal tape had been left on the switch. He did not retrieve the landing-gear pins upon entering the aircraft.

The MIMs calls for installing landing-gear pins after shutting down the starboard engine and before doing maintenance.

The night-check supervisor thought control of the recovery had been transferred to the CPO. The CPO didn't feel he was part of the recovery crew because he was off duty.

The troubleshooter signaled the PC that he wanted to enter the nose wheelwell. The PC gave a thumbs up, then tried to get the attention of the aircrew, but failed — their attention was focused on the division chief.

The night-check supervisor had reminded the CPO that the landing gear needed to be recycled. The CPO told the pilot to raise the landing gear handle, but the pilot was unsure about doing it. The CPO said, "Go ahead, I've seen it done before." The NFO objected when he saw the pilot reach for the handle but wasn't heard above the noise in the cockpit. The NFO, seeing the pilot remove his hand from the handle, assumed the pilot had heard his objections and directed his attention elsewhere.

The pilot asked if the landing gear pins had been installed. The CPO said, "Yes, but it doesn't make any difference." When the gear handle wouldn't come up, the CPO told him to push the down-lock-override solenoid button. That's when the night-check supervisor discovered the pins in the external stowage box and yelled, "Pins!"

At the same time, the pilot pressed the override button and raised the gear handle. The nose gear collapsed on the troubleshooter in the wheelwell and killed him instantly.

He died because no one was in charge...

• When the aircraft returned to the line, the recovery crew had already discussed troubleshooting techniques to relaunch and complete the FCF. The off-duty division CPO was not privy to that discussion, but, eager to assist, got involved.

• The aircrew wasn't told that they were expected to finish the FCF and considered the flight over. The pilot thought he was assisting in a maintenance action. Although he had his doubts, he accepted the CPO's assurances that the gear pins had been installed and that it was OK to raise the gear handle. No one clearly established who was in charge; everyone assumed someone else was leading.

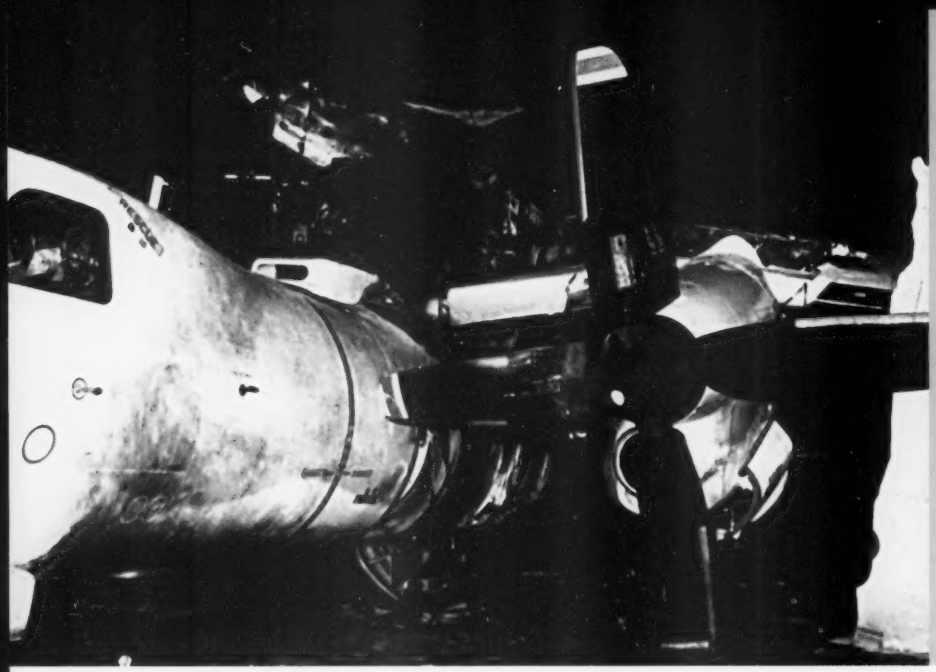
• Authority was unclear because of the real experience and perceived expertise of the division CPO and the pilot's lack of knowledge of the aircraft's landing gear system. Ignoring his gut feeling of unease, the pilot continued with a questionable action because the chief told him it was OK. Each of the parties involved had only a partial understanding of the situation.

• The chief should have taken the time to think about what he was relaying to the pilot. The pilot and NFO should have exercised better aircrew coordination. The pilot should not have followed through on a procedure that he was unsure of and uncomfortable with.

• An error chain was set up when the QAR failed to ensure that MIMs procedures were completed. The troubleshooter didn't explain to the pilot that he intended to get into the nose wheelwell. The off-duty chief interfered with the recovery crew. The recovery crew did not make sure the landing gear were pinned. The plane captain should not have approved the troubleshooter going into the wheelwell without first coordinating with the pilot. The night-check supervisor failed to properly relay the victim's request to reset the landing gear. No one had the big picture.◄

Dr. Alkov is a behavioral psychologist. He retired from the Naval Safety Center three years ago.

If you take a shortcut, someone will pay for it.



A gas-free engineer could have prevented this mishap —if he had been called. Should you call on your engineer under similar conditions? Only if you have a brain.

What You Can't See Can Hurt You

by AMCS(AW/NAC) Ed Winnett

Survey teams from the Naval Safety Center have learned that some commands don't think aviation gas-free engineering (AVGFE) is required. They conduct fuel-cell maintenance without defueling, depuddling or verifying combustible vapors have been vented to below the lower-explosive limits (LELs).

•*Before working in fuel cells, wing tanks and box beams, purge them of toxic and combustible fuel vapors, which are hazardous to personnel.*

•*Before working in a fuel tank or doing maintenance with fuel-tank access covers removed, the tank must be defueled, purged and certified in accordance with NAVAIR 01-1A-35.*

Similar warnings in aircraft MIMs alert maintenance people to the hazards associated with fuel-cell and tank maintenance. There are two hazards: a toxic, oxygen-deficient atmosphere, which quickly incapacitates anyone who breathes it, and concentrated vapors that are easily ignited.

Protective measures are discussed in the AFGFE program described in NAVAIR 01-1A-35, the *Aircraft Fuel Cells and Tank Manual.*

Testing for safe LELs is required even for reach-in maintenance, where maintainers only put their hands and arms in the cell. No aircraft or support-equipment fuel cells are exempt from the requirements of GFE.

Here's an example of why GFE requirements exist: An E-2 was brought into the hangar to change two valves inside the fuel tanks. Mechs removed access panels from the fuel cells and went to work even though the aircraft had not been completely defueled, vented or certified safe for maintenance. Fuel vapor ignited during maintenance, exploded, killed four Sailors, injured a fifth, and cost us an aircraft. Had GFE testing been done, it would have shown that the tanks contained a dangerous mixture of JP-4 and JP-5. Mixing the two fuels lowered the flash point to 78 F, making the fuel easy to ignite.

If your aircraft or support equipment MIMs don't contain warnings similar to those at the beginning of this article, your people are at risk. NA-01-1A-35 takes precedence over other pubs on fuel-cell maintenance. If requirements are unclear, talk it over with the gas-free engineer at your ship or station. ◄

Senior Chief Winnett is a maintenance analyst at the Naval Safety Center.

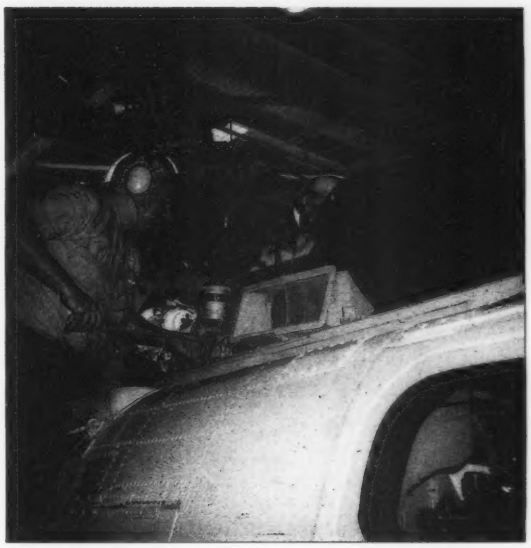
A Shipmate Tried to Kill Me

by Lt. K.A. Szmed, Jr.

I think one of my shipmates tried to kill me. I know it wasn't intentional, but he might as well have held a gun to my head and pulled the trigger. I just can't believe a shipmate could be that careless.

We were three-quarters of the way through a deployment. Our maintenance team was experienced and worked well together. We were confident we could handle anything.

We had just returned to the ship from a functional check flight after a phase-A maintenance inspection on our det's SH-60B. The flight had gone well except for a vibration problem. We later tracked it to hydraulic-damper servicing, but at the time, we wanted to investigate other possibilities and reservice the main-accumulator.



An AD found a small chunk of metal when he inserted a rig pin into the flight-control mixing unit.

I wasn't satisfied that pedal movement matched the positions we sought in our functional checks. Maybe it was the recent week-and-a-half layoff from flying that made the controls seem unusual to me. I knew no maintenance had been done that would affect the tail-rotor rigging; I asked that it be checked anyway. The lead AD and AMS were skeptical but gave it a look.

The AMS found the tail rotor's input-control rod a bit out of rig, but not enough to affect the controls. In fact, it had probably been that way since the factory.

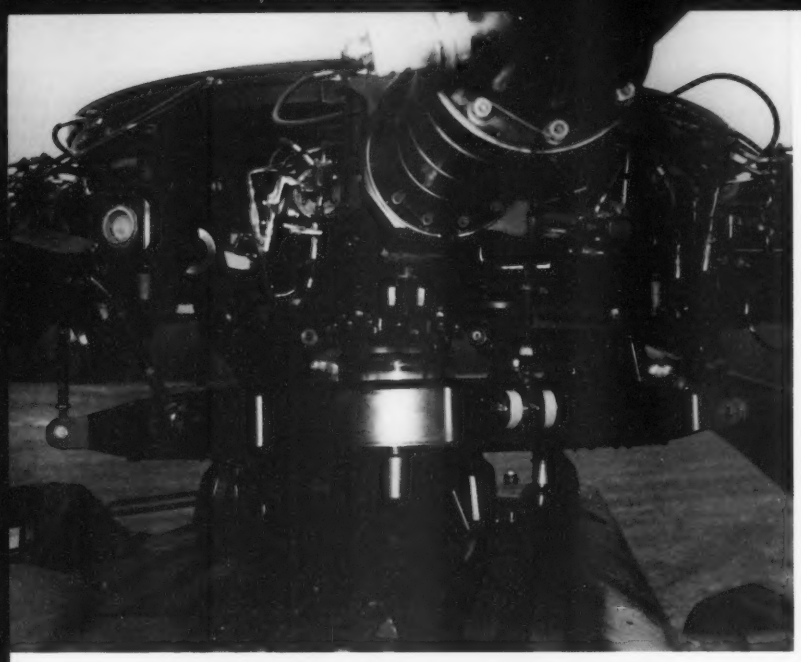
What the AD found came as a shock. As he inserted a rigging pin into the flight-control mixing unit, out popped a small chunk of metal. It was the end of a rig pin that had broken. If that piece of tool had shifted a little farther, it would have violated a lot more than our tool-control program. It could have jammed a flight control and caused a mishap.

...and somewhere there's a signed-off MAF that reads: "Broken portion of tool not found...

I almost lost faith with my maintenance people. As a pilot, I felt they'd failed me. But as I looked at the disturbed faces of the men of my detachment, I knew I had to be wrong. These guys were as upset as I was.

We had received this aircraft from another command just before deployment. I know that somewhere there's a signed-off MAF that reads: "Broken portion of tool not found. Not on aircraft." ◀

Lt. Szmed flies with HSL-48.



It Might Have Been a Squashplate

by AMS2(AW) Kelly Allen and AMS3 James Kehler

An AMS2 could have been pinned under the swashplate with 3,000 psi forcing it down on him.

It was another hot night on mid-check. Airframes had to troubleshoot a recurring discrepancy on an MH-53 Sea Dragon. The gripe, a jump in the main-rotor servos during second-stage shutoff, had been in the work center for several days. The testing-and-troubleshooting manual didn't address this problem. An AMS3 (a newly appointed CDI) and an AMS2, who had recently checked into the airframes shop, were to change a main-rotor servo in hopes this would fix the problem. The job required four people to complete. However, with mid-check undermanned, the CDI was confident he could do it with only two people.

After skimming the MIMs to review the major steps for removal, the CDI went out to set up a stand to hold up the swashplate so he could remove the servo. When the AMS2 arrived, the CDI told him he'd never done the job from start to finish and didn't know how to install the stand. The AMS2 had seen it done once or twice a year earlier and was certain he could install it.

The CDI started the auxiliary power plant. The AMS2 got into position on top of the aircraft and waited for the CDI to raise the swashplate so the AMS2 could install the stand. With the stand in place, he returned to the deck and signaled the CDI to lower the swashplate. He then climbed back under the swashplate to make certain it stayed centered on the stand as it descended.

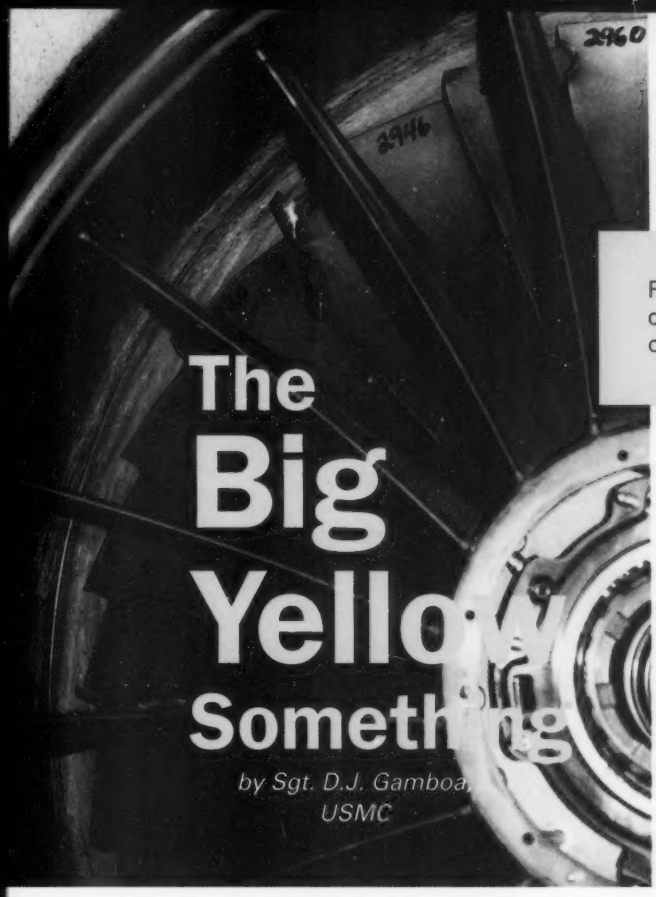
Using APP power, the CDI lowered the swashplate onto the stand. When they touched, a leg on the stand snapped from the APP's 3,000 psi and flew into the main gear-box's drip pan as if it had been shot out of a cannon! The AMS2 quickly climbed down from the aircraft and told the AMS3 to go on top and inspect for damage.

After shutting down the APP, removing the stand, and finding the broken leg, the CDI and the AMS2 warned maintenance control the swashplate might be damaged. They were right. Further inspection revealed the swashplate had warped and needed to be replaced.

A job that should have been finished before the shift changed cost the squadron an asset for several days and $97,000 for a new swashplate.

The AMS3 had no way of knowing there was a problem with no observer on the scene, but a number of things could have prevented this mishap. If the CDI had read the MIMs more carefully, he would have known to use an external power source set at 1,000 psi instead of the 3,000 psi the APP provides. The AMS2 should have blown the whistle when he saw there was no manual on the aircraft. And if the two AMs had used external ICS, they would have had direct communication while the APP was on line. Most importantly, they should have told their supervisor they needed more men instead of assuming a can-do attitude. ◄

AMS2(AW) Allen and AMS3 Kehler were in HM-14 when the incident happened.



FOD damage by a sensor-pod cover to an F404GE400 engine cost $750,000 to repair.

The Big Yello Someth g

by Sgt. D.J. Gamboa, USMC

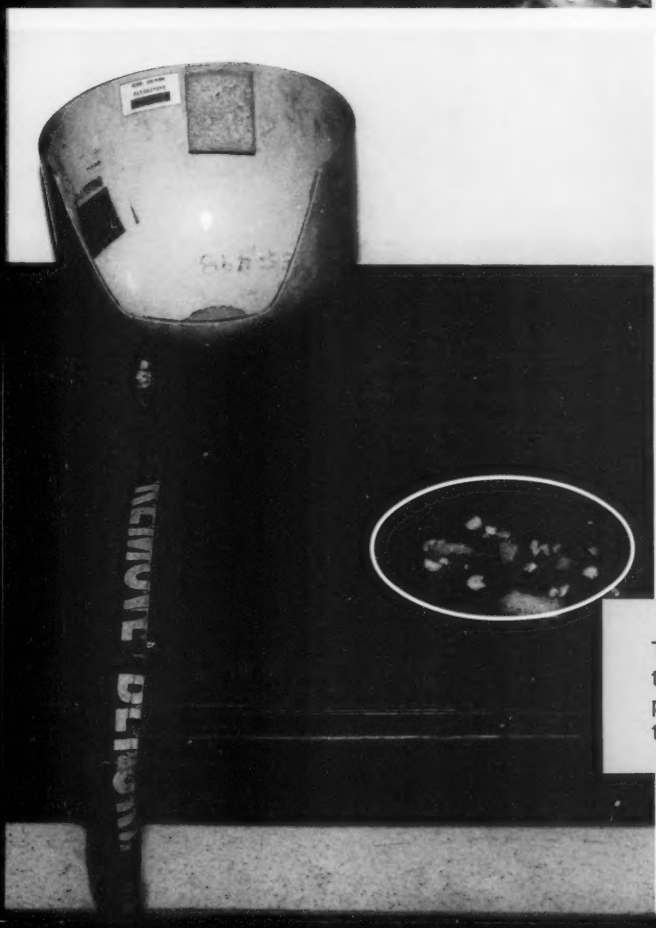
One of our squadrons turned in a FODed F404 engine. The FOD report said the pilot had seen "a big yellow something." As work-center supervisor, I told him I would try to find out what caused the damage.

One of my crews tore into the engine and brought me some of the debris they found. I walked to the squadron that had FODed the engine and played the role of lost Marine while I looked around the flightline. I spotted some debris that resembled the material that had come from the engine.

A lineman told me the yellow material came from a sensor-pod cover. I went to their ordnance shop and asked to see one of the covers. They were curious about my question because one of theirs was missing.

They weren't going to get it back, because the source of the FOD was the missing sensor-pod cover. The squadron held a stand-down to keep this from happening again, but it was a little too late for this engine. ◄

Sgt. Gamboa is assigned to MALS-22 Power Plants at MCAS El Toro.



The yellow debris (FOD) in the circle is from a sensor-pod cover like the one in the top-left corner of the photo.

Photo composite by John W. Williams

Wingin' It

by VS-22 Checkmates

When the port wing-fold motor failed, the wing fell on the fuselage.

We were two months into our deployment and making all our sorties, thanks to an impressive effort by the maintenance troops. Those months in the Persian Gulf were fast becoming a warm memory as we braced for winter in the Adriatic Sea.

Late one evening, night-check personnel were on the flight deck getting aircraft ready for the next day's events. The weather was standard for the Adriatic: 35-to-40-knot winds across a pitching, dark flight deck.

The task at hand was wing-fold checks on 705. A turn-qualified mech in the cockpit would cycle the wings for a post-maintenance inspection with a safety observer watching from outside. During the final fold, the port wing's fold motor failed just as the wing passed through the vertical position. The wing finished folding but didn't stop. With the help of gravity and a stiff breeze, it hit the top of the aircraft's fuselage.

Securing hydraulics and engines, the mech scrambled outside to investigate and found the safety observer uninjured. They quickly surveyed the damage with flashlights and reported the incident to maintenance control.

The damage was serious enough to keep the aircraft in the hangar bay for the rest of the deployment. On the up side, no one was hurt.

Using the buddy system on the flight deck, particularly at night, helps people to look out for one another. When you're doing everything by the book, there is still the unexpected. ◄

CROSSFEED

Cdr. M.B. Pearsall
Head, Aviation Maintenance and Material Division

AZCS(AW) Dan Steber
Editorial Coordinator

POWER PLANTS

What Was That Noise?

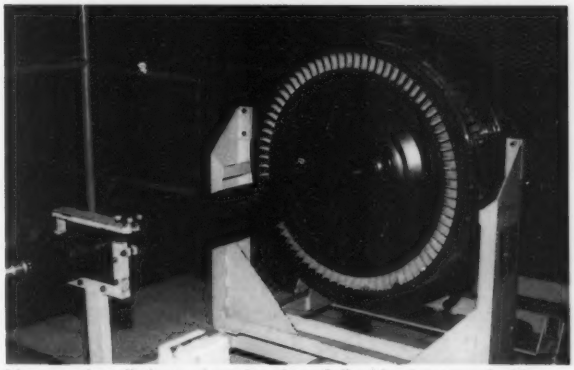
by AD2(AW) E. J. B. Gonzales

We were doing a 4,000 total-accumulated-cycle inspection on an F110-GE-400 when we ran into a problem that doubled our work. We were inspecting and repairing hot-section components and rebuilt the engine as the parts came in; I coordinated the work.

Before installing the low-pressure-turbine rotor, we put in the No. 4 bearing outer ring and seals. The next step was to torque the retaining nut. A QAR and I inspected the area for FOD and checked the assembly. Everything looked good.

A mech began tightening the nut to set the torque. When it reached the right torque, we heard an unfamiliar noise. We checked again for discrepancies, found none and finished building up the engine.

When we placed the engine in the test cell, its rpm wouldn't pass 59 percent. We exhausted our troubleshooting techniques and agreed that we had an internal problem. Tearing down the engine again, we found that No. 4 roller-bearing assembly had failed.



You can't tell that a bearing has failed by just eyeballing a built-up F110-GE-400 low-pressure turbine assembly.

Further assessment by the GE tech rep and AIMD QA revealed the duct adapter had shifted when the mech torqued the No. 4 retaining nut; that's what had caused the odd sound. The shift caused the bearing to fail. If the bearing had failed later, it could have cost us an aircraft.

AD2 Gonzales is the night-check power-plants supervisor at AIMD, NAS Oceana.

ALSS

Replacing the *Man From LOX*

by AMEC(AW) L. Beilharz

The "Man From LOX" was deleted from the video safety-training series years ago because of outdated and politically incorrect content. Since that removal, there's been a gap in liquid-oxygen-safety training. A replacement video is finally ready for release. The replacement explains how to service LOX converters and discusses precautions. Your command can get one of these videos by sending the information listed below to one of the addresses provided.

1. Production identification number (PIN) is 504558, and the title is *Oxygen Servicing and Safety Procedures*
2. Video format desired (3/4 U-Matic, Beta, VHS or HI-8)
3. Command mailing address
4. Point of contact and telephone number
5. Command unit identification code

❑ Commands east of the Mississippi, fax or send requests to:

NETPMSA Norfolk Regional
Electronic Media Center
9770 Decatur Ave., STE.250
Norfolk, VA 23511-3292

Call (804) 444-4011, fax (804) 444-3711, DSN 564.

❑ Commands west of the Mississippi, fax or send requests to:

NETPMSA San Diego Regional
Electronic Media Center
921 W. Broadway
San Diego, CA 92132-5105

Call (619) 532-1360, fax (619) 532-1130, DSN 522.

The really nice thing about this deal is that it only costs the time it takes to make the request. If you have trouble getting a copy, call me at (804) 444-3520, Ext. 7287, DSN 564.

Chief Beilharz is a maintenance analyst at the Naval Safety Center.

SUPPORT EQUIPMENT

Of Course I Know How To Use It

by Maj. Kevin G. Emery, USMC

There is a difference between knowing how to a use a piece of unfamiliar equipment and the right (safe) way to use it. I read a hazard report that is the perfect example of, "Of course I know how to use it." While trying to lift a propeller onto a positioned dolly, mechs discovered that the hangar-deck crane (which held the propeller) would not fit against the dolly. The width of the legs prevented positioning the crane to transfer the propeller to the dolly stand.

A crewman noticed that if the hinged leg-pins were removed, the leg width could be adjusted to accommodate the dolly-caster's width. After he did that, the propeller began to sway. Between the weight of the propeller and the unstable crane, the crew couldn't keep the prop from hitting the deck.

The crew had not read the operating instructions.

Fortunately, there were no injuries. Just because you can run a piece of equipment doesn't mean you know how to do it safely. That is why we have a licensing program.

Maj. Emery was head of the power plants branch for maintenance analysis at the Naval Safety Center before he transferred to HMT-303.

AIRFRAMES

Where's the Air?

by William A. Mason

One of your Hornets comes home with a "TANK PRESS" (A and B models) or "TK PRESS LO" (C and D models) caution light indicating a possible failure in the fuel-tank pressurization system. It's a simple system, so you follow by-the-book troubleshooting procedures and check out electrical circuits and command signals. They're OK, so you go to step two and change the internal-pressure regulator, and you're done. You test the system and — it fails again. This is where the head scratching begins. Do you change the regulator again, recheck circuitry or what?

Above 20,000 feet, the internal fuel-pressurization system of a Hornet needs about 3 psi to keep a positive pressure in the fuel cells. To obtain this, ambient air from ducts in the vertical stabilizers is drawn into a vent tank with air pumps that operate on regulated bleed-air. If anything goes wrong with the system, those caution lights illuminate to let you know.

Your problem may lie with the regulated bleed-air that operates the pressurization system's air pumps. To repair a fuel-system pressurization problem, the first step is to have the AMEs run the first portion of their ECS test. This test will establish that there is correct air pressure at test-port one. You do this because the internal-fuel-pressurization test assumes that proper bleed-air pressure is available to operate the system. The reading you get represents pressure in the fuel-pressurization line that tees off into the cold corner of the primary heat exchanger and runs through the keel aft to the AMAD BAY, door 53R. (See A1-F18AC-PIM-010, 051 00, #2 and trace back.)

If that pressure reading is less than 55 psi, you must do a bleed-air check to find the cause of reduced airflow to the pumps. In one recent case, reduced pressure at test-port one was caused by a secondary-bleed-air-pressure regulator in the bleed-air duct closing down when it was supposed to stay open. If the right pressure is there and the caution remains, inspect the ducting from the

primary-heat exchanger to the fuel-system regulators in door 63R for leakage.

An earlier reduced-airflow problem was caused by a blown seal in duct door 55R (see No. 12, PIM-010, 060 00). In both examples, the internal regulator was opening as commanded, and when the regulator inlet line was disconnected, airflow was present. However, that airflow wasn't enough to operate the air pumps required to pressurize the vent and internal tanks.

Once more, the internal fuel-system-pressurization test is predicated on proper bleed-air-system pressure being available to operate the system. So get the AMEs to help you make sure it is. That way, you'll know where the air is and how to get it where it's supposed to be with fewer component changes.

Mr. Mason is an FA-18 airframes tech rep at NAS Lemoore.

SUPERVISION

Ducking Can Get You Killed

by Ltjg. Kimberly J. Schulz

Here we are, 90 days into the deployment, and at least three times a day, we're called to the bow for FOD walkdown. You know the routine: "Eyes on the deck, hands out of pockets, and chatter to a minimum." All the colored shirts head aft in search of FOD that could destroy an engine or hurt someone. That's when somebody decides to play Russian Roulette and duck ever so swiftly under a drop tank, bomb, missile, chaff bucket, or tail hook.

The scenario described above is enacted daily by people of every pay-grade: shooters, plane captains, aviators — basically, everyone who knows better. So what the heck's the problem? It's a sure bet that it's not because the person doesn't know it's dangerous to go under suspended modules because that's included in the flight deck PQS. Laziness maybe? No, I can't believe that either. These are some of the hardest working, most self-motivated people in existence. I think the answer boils down to being content with the current situation.

For instance, we're halfway through cruise, into a comfortable routine, and this is just another FOD walk down. There's an EA-6B pod ahead. Those guys are squared away; the pod looks to be secured, and I haven't seen one drop yet. Besides, it takes only a second to swoop underneath it. You can imagine the result of a 500-pound-plus store dropping at this inopportune time.

Even during FOD walkdown, a flight deck is not a safe working environment. It's certainly not the place for taking chances — flight ops or no flight ops. Ducking under stores just isn't worth the risk. Each day, we have to remind ourselves how dangerous the job we do really is and never assume suspended stores are properly rigged. Take five seconds and the steps to go around them.

Ltjg. Schulz is assigned to VAQ-135.

MAINTENANCE MANAGEMENT

A Quality-Assurance Reminder

by AMCS(AW) James C. Hamm

According to the message traffic, maintainers make their share of blunders. We install engine parts incorrectly, twist safety wire wrong, skip using torque wrenches, and don't replace hardware when we are supposed to. We bobble the repair of ejection seats, life rafts and other life-saving equipment. We're even sloppy about fastening panels and installing fuel caps before flight.

CDIs, CDQARs and QARs set good examples for us when they use technical manuals to research questions they aren't sure of. Those same inspectors encourage us to use the 18-inch rule by using it themselves when they check our work after a maintenance action.

QA and supervisors who make rounds and spot checks tend to keep technicians in the manuals so they do even the simplest task correctly. Don't be afraid to stop production for quality and safety; just make sure the boss knows why you're doing it.

AMCS Hamm is a maintenance analyst at the Naval Safety Center.